

MILITARY REVIEW



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COMMANDANT

ASSISTANT COMMANDANT

ASSISTANTS TO THE ASSISTANT COMMANDANT

RESIDENT INSTRUCTION

NONRESIDENT INSTRUCTION

RESEARCH AND ANALYSIS

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The MILITARY REVIEW disseminates modern military thought and current Army doctrine concerning command and staff procedures of the division and higher echelons and provides a forum for articles which stimulate military thinking. Authors, civilian and military alike, are encouraged to submit articles which will assist in the fulfillment of this mission.



POLICY.

Unless otherwise indicated, the views expressed in the original articles in this magazine are those of the individual authors and not necessarily precisely those of the Department of the Army or the U. S. Army Command and General Staff College.

Editor.

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This copy is not for sale. It is intended for more than one reader.
PLEASE READ IT AND PASS IT ALONG

USA Command & General Staff College Keeps Pace With the Future

Major General Lionel C. McGarr, USA

Commandant, U. S. Army Command and General Staff College

"Eternal vigilance is the price of liberty"—Curran, 19th Century

THE world has lived with progressively increasing tensions since well before the "peace in our time" statement at Munich—tensions which have been increased or decreased at will to serve the purpose of our enemies. At present there is little foreseeable diminution of those tensions which are being employed on a global scale by international communism as a tactic, a weapon in the titanic political, economic, psychological, and at times physical conflict between completely opposing ideologies.

In the "equation of survival" the security of the United States and the protection of our fundamental institutions are the stake in this decisive era of history. *Improvement* is the key to this vital equation, and the U. S. Army Command and General Staff College remains dedicated to its traditional mission of training and improving the minds of the Army's commanders.

Our chance of progress, our very hope of survival, lies in molding the minds of our leaders in the direction of progress. This is the sacred trust and the awesome duty of the U. S. Army's educational system.

Although the *status quo* resists change because it is the path of least resistance, nothing in life is static. We either move forward or we move backward. The Armed Forces of our Nation realize that substantial and far-reaching change is inevitable. New organizations and weapons are but facets of *planned change*—change in view-

point, approach, and emphasis. The most necessary element of this change is *mental mobility* which is all important if we are to gain the *over-all mobility* necessary to insure success on the atomic battlefields of the future.

As the total implication of the far-reaching decisions made necessary by these planned changes becomes increasingly clear, we realize that we must add fiber to the strength and wisdom to the councils of the defense team. More important, however, we must insure that we systematically anticipate and prepare for these fateful decisions. In this age of advanced technology and original thinking, we cannot accept outmoded concepts and half measures. More than a century of progress has been crammed into the past few years, and we must keep pace! We must have the imagination to recognize, the inclination to understand, and the ability to use new concepts evolved as flexible instruments

of the art of war serving as an instrument of national policy. The USA CGSC must, by realistic assumption and instruction, insure that our doctrine and training, even without complete field test and evaluation, are sufficient and ready for any future war.

Thus logically we can conclude that all

sign posts, both atomic and conventional, point irrevocably to the same fateful crossroad of decision. We are faced with a definite choice between two major opposing possibilities:

First: We can feel our way slowly and cautiously forward, making certain of each

Thinking typical of World War II and Korea can negate all progress if applied blindly to new concepts, new organizations, and new weapons on the nuclear battlefield, and could well be fatal to our way of life.

hesitant step, with one hand firmly attached to the past. This path leads to a safe, sure, certain goal—if the enemy will cooperate.

Second: We can be guided by advanced thinking based on the results of research and analysis, combat developments, and tests. We can move boldly and decisively forward, retaining that which is applicable but breaking clearly with the outmoded concepts of the past—casting only an occasional backward glance for orientation. This course entails greater risk and is a more difficult road to follow, but its possibilities of a breakthrough in advancing the art of warfare offer far greater rewards than does the first course. A similar breakthrough in educational philosophy also must be sought.

The speed of progress is forcing us away from the slow, sure, evolutionary approach and more toward the reasoned revolutionary approach. This is demanded if our Army is to continue to remain strong through proper mental conditioning, forward thinking, and decisive action.

In the shadow of the Fort Leavenworth clock tower overlooking the Missouri, the College has reached its decision. Fort Leavenworth is now taking this forward-looking approach in attacking its most vital twofold mission: *doctrine* for the modern Army, and *education* for its officer corps. Although closely interrelated,

these two missions are actually separate and must be considered as such.

The education of the selected professional officer must prepare him for the vast panorama of possible battlegrounds. These may well stretch from the cold war to the unlimited nuclear holocaust, and into those

other important arenas of this decisive and troubled time—the testing ground, the joint staff, and the conference table.

Just as man, well-trained, well-indoctrinated, and properly motivated, is the only absolute weapon; so the mind of man is the most wondrous work of the Creator. However, the mind of man does not function on automation, and the responsibility of the Army educational system in the field of military education is to insure that the military mind functions in a productive, forward-looking, nonstatic capacity. The development and use of this terrific power for accomplishment locked in the mind of man has always been the challenge faced by the educator. The military educator must insure that the soldier is able, ready, and eager to assimilate and employ the progress of the atomic era. His mission is to produce a well-rounded officer who can think on his feet and fight with his head, as well as his heart, in any future situation.

In the *doctrinal* field, the College is charged with developing doctrine and with initiating action as necessary to formulate or revise doctrine, including joint doctrine, within the concept guidance furnished by the Commanding General, U. S. Continental Army Command (US CONARC). This doctrine must be bold, forward-looking, and practical. It must be based on an accurate understanding of the entire spectrum of the future battlefield to in-

clude the army field forces engaged thereon.

Fulfilling this mission, Leavenworth is now crossing the threshold of major change. The practical effect of the transition now under way will be a completely revised and rewritten course of instruction for 1957-58. This course will be directly related to the mission of the Army and will place greater emphasis on developing reasoning ability, decisiveness, professional standards, and character in our graduates.

We found that the optimum curriculum and implementing College organization required that the instructional departments be reorganized on functional lines. The required organization grouped related functions and more definitely fixed responsibility.

The next logical step was a decentralization, under broad College guidance, of curriculum planning to the 1957-58 departmental committees who were to actually write the new units of instruction. This allowed for considerably more individual initiative and use of the collective ability of the staff and faculty. This decentralization was then carried into the

Directors of both Department VI (non-resident instruction) and Research and Analysis were made Assistants to the Assistant Commandant to highlight their missions and give them more prestige and authority. Finally, to round out the control at College level, the Faculty Board was strengthened and placed directly under the Commandant. The advantages gained by these changes will be elaborated upon later.

The 1957-58 Course will be based on the most modern current doctrine for the atomic age Army, and will be presented by a College whose revised organization and instructional philosophy are directed toward meeting the challenge of the advanced forms and tempo of warfare.

The Challenge

It is the responsibility of the Command and General Staff College to ride the crest of the wave of progress and help harness its tremendous force to the accomplishment of the Army's mission.

The urgency for the change was evident and it soon became clear that it must not be merely superficial. In addition, it was determined that the yearly correc-

That first mushroom cloud at Hiroshima triggered a chain reaction not only in the technical nuclear field but in the minds of men—a reaction which has generated an irresistible wave of innovation and progress which now is surging upward and onward over outmoded concepts and thinking. In the light of events since Hiroshima, the so-called “common sense” of past military thinking must be held suspect and called upon to prove itself or to be labeled as reactionary, sterile thinking.

centralized College staff by changing it from the director system to the coordinating system.

In addition, to insure necessary control, a Deputy for Doctrine was appointed to assist in coordinating planning and preparing both doctrine and instruction. The

tive partial rewrite would not suffice. To obtain a properly balanced curriculum and an integrated supporting organization, it was necessary that personnel allocation, scheduling, the examination system, the new educational concept, and methodologies all be considered concurrently and

woven into the new course from its very inception. Thus it can be seen that the *entire change had to be programmed for completion in a single year*. Although expected resistance to change has been encountered, this sizable task is actually ahead of schedule due to the dedicated officers of the staff and faculty who have given it their full support.

The directed conversion of all divisions to the new organization, coupled with the recent US CONARC policy requiring service schools to emphasize atomic instruction from the outset, with nonatomic instruction covered as a modification thereto, pointed up the necessity for a complete revision of the 1957-58 Course.

As can be seen, this gave the College a unique opportunity to incorporate other essential revisions. It allowed the concurrent examination of corps and army doctrine and the modernization of administrative support concepts, based on new troop lists and *currently evolving doctrine*. It permitted the orientation of the curriculum to support the concept of the Army's mission set forth by the Chief of Staff, with its increased emphasis on local wars and other situations short of general atomic war. This reorientation necessitated a shift in emphasis of a majority of instruction, placing it in more likely locales and situations, in line with the role of the Army today. The revision will allow the College to

nity, by examining course content, to correct a growing overcrowding of the curriculum and, more important, this should ultimately result in a reduction of the author-instructor workload. It allows adoption of a long recommended viewpoint on curriculum design—that the content is at best a compromise and that it is better to cover a smaller amount of really necessary material *thoroughly*, emphasizing important areas, than to risk *superficial* treatment of a greater amount of material.

Educational Survey Commission

An Educational Survey Commission appointed by Major General Garrison H. Davidson, former Commandant, also pointed up numerous areas for improvement.

This commission consisted of three distinguished retired combat commanders: Lieutenant Generals Troy H. Middleton, Geoffrey Keyes, and Manton S. Eddy; and three equally distinguished civilian educators: Dr. Jacob S. Orleans, formerly Coordinator of Teacher Education in the Colleges of the City of New York; Dr. Harl R. Douglass, Director of Education of the University of Colorado; and Dr. Harold F. Harding, Assistant Dean of the College of Arts and Sciences, Ohio State University.

General Davidson and I agreed with many of the commission's recommendations. The tenor of its findings can be

Our greatest problem is changing the approach and the thought processes of our officer corps to keep it abreast and ahead of present developments. Outmoded concepts and half measures applied to new concepts of the future atomic battlefield could spell national disaster.

keep instruction abreast of the rapid evolution of all combined-arms doctrine caused by technological developments in areas such as air and ground mobility, missiles, surveillance, atomic weapons, air defense, and signal communications.

This revision also gave us an opportu-

seen from the following extracts of its report of June 1956:

It is far better to improve the student's ability to solve problems of the future than to master details that will be outmoded this year or next.

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Instructional units should be planned, in general, for the learning of principles and the application of them in problem situations, rather than for the mastering of information and skills. This can be done through relatively greater emphasis than is now the case on independent thinking by students, originality, resourcefulness,

sions for 1957-58 without detriment to the current course. (Figure 1.)

Because of the major job facing the College, the Commandant's "Curriculum Guidance" was issued early, 30 October 1956. On 4 December 1956, based on research of College organizations and curricula since prewar days, former curriculum guidance,

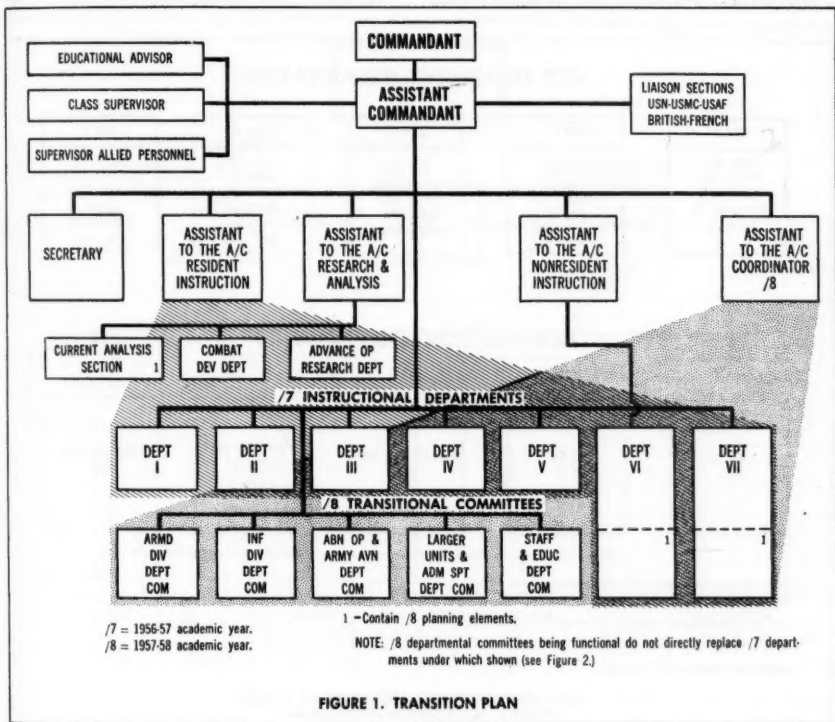


FIGURE 1. TRANSITION PLAN

initiative, imagination, judgment, evaluation, and the like, rather than on information, skills, and solutions as such.

The Transition

The fall of 1956 was a period of intensive search for the best means of achieving our objective. The yearly cycle of College activities required a transition plan which would achieve the sweeping revi-

study of the report of the Educational Survey Commission, and the findings of a series of specially appointed boards, the Commandant's decisions on the new curriculum, the supporting College organization, and the transition plan were announced. The major features of the transition plan include:

1. Preparation of the 1957-58 Course

separate from but intimately coordinated with the normal conduct of the 1956-57 curriculum.

2. Formation of a nucleus of each new instructional department, and a coordinating staff to prepare the new course, these nuclei to become the new organization by July 1957.

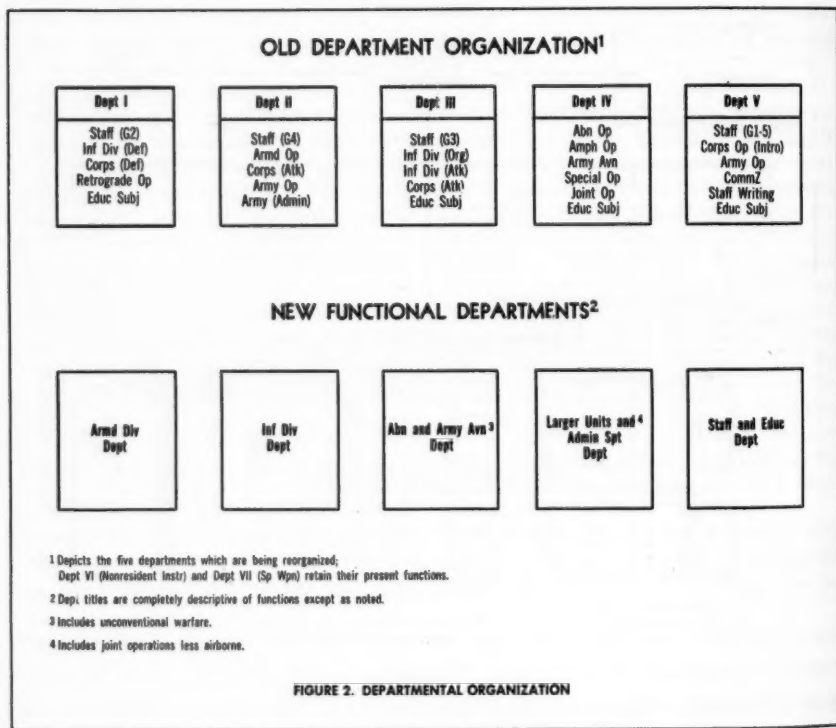
3. Reorganization of the College by July

writing of some units of instruction had begun.

The New Organization

As a means of achieving the results desired for 1957-58 and for the future, the new organization is designed on the following principles:

1. More functional organization of in-



1957 to provide a structure to present the new course and to achieve other fundamental objectives.

The transition plan is shown graphically in Figure 1. Executing this plan, the new departments currently are at about 50 percent strength. As of January 1957, curriculum planning was complete, and the

instructional departments. Figure 2 shows the old and new assignment of responsibility to departments.

2. Decentralization to department directors of authority and responsibility for doctrine and instruction. This is permitted by the functional departmental organization.

3. A Faculty Board, with expanded scope, on which all department directors are represented, together with a small coordinating staff, permitting essential control of College matters of major significance.

4. Substitution of a coordinating staff for the Director Staff. Department di-

partments where they are badly needed. An Assistant to the Assistant Commandant for Nonresident Instruction is also established to focus College attention on this vital area.

Figure 3 shows the organization for July 1957. Other objectives attained are:

1. A capability for the rapid modifica-

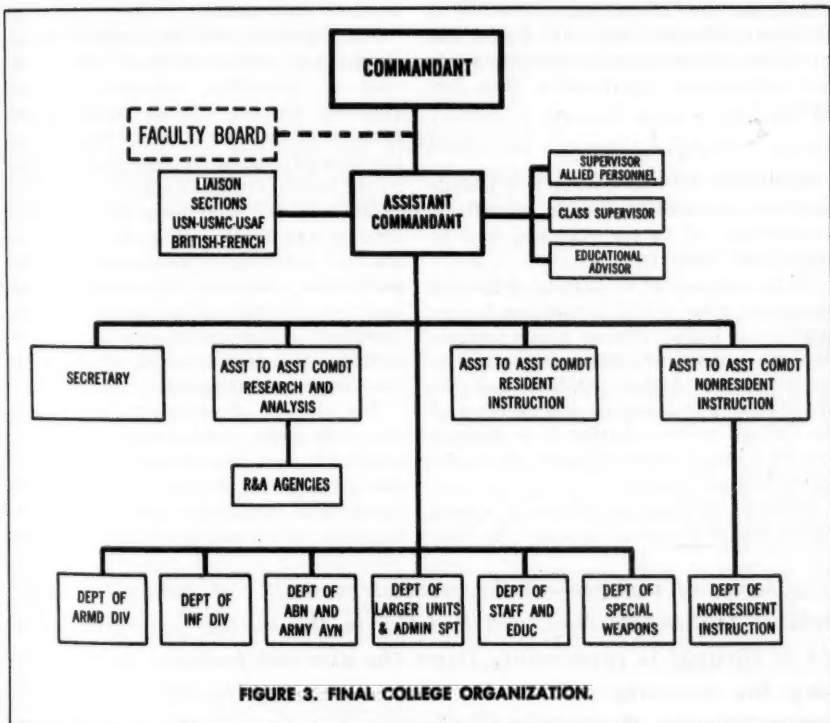


FIGURE 3. FINAL COLLEGE ORGANIZATION.

rectors are to be responsible directly to the Assistant Commandant and the Commandant, rather than to the Director of Instruction who now becomes Assistant to the Assistant Commandant for Resident Instruction. A command echelon is thus eliminated, and the academic staff is reduced from 29 officers to 10. The spaces saved are allocated to Instructional De-

tion of doctrine. Changes in doctrine due to new developments are processed rapidly by departments, as college authorities in each field, thus eliminating bottlenecks.

2. Decentralized curriculum planning and execution: Each department controls and presents its own block of curriculum hours in accordance with necessary guidance prepared at College level.

3. Exploitation of the talents and energies of the individual members of the faculty, allowing greater initiative to the author-instructor.

4. Distribution of personnel to best use their individual experience. Faculty members of the technical and administrative services are placed in all departments to insure that their abilities are available throughout the College. Representatives of the Navy, Marine Corps, Air Force, and our Allies are more closely integrated into our instructional organization than formerly.

The Curriculum

The CGSC 1957-58 Course will include more time devoted to division operations, to coverage of future warfare, and to educational subjects.

Wider coverage of all aspects of division operations gives a firm foundation for instruction in higher echelons where instruction can concentrate more on the *differences* between higher echelons and the division. This indicates no scaling down of the College mission. Rather it is directed toward a better accomplishment of *all* elements of that mission.

Armored division instruction is almost double that of previous years and has been

aviation also has been doubled in order to stress the tremendous importance of air mobility to the modern Army. These important subjects also have been placed in a single instructional department to insure proper doctrine and emphasis in the curriculum. *All* departments, however, will emphasize strategic and tactical air mobility for troop movement and logistics in their instruction.

All instruction will be forward looking. Progress is seldom achieved without the *pain* of discarding outmoded concepts. However, we must retain only the best features of the old and integrate into them the most promising features made possible by the atomic era. This must be a *starting point only* for new progress. Increased time is specifically set aside for future warfare subjects. As newly oriented, this instruction prepares the student to adjust to the future and to contribute to the continued modernization of the Army. In addition, this tests doctrine developed at the College and elsewhere.

The purpose of educational subjects is the long-term development of values, standards, and theoretical knowledge of the professional soldier. The treatment under this completely new block of instruction will be entirely educational rather

New forms of war present the greatest possibility of innovation in the field of tactics, strategy, and logistics in the nuclear era, and mobility of thought is paramount. Down the dim and tortuous path of history the necessity for survival has constantly forced the military leader to keep ahead of the changing character of the military art. The pathway is strewn with the bones of those who failed to do so.

placed in a separate instructional department rather than a department subsection. This allows for more extensive coverage of mobile mechanized operations based on the combat command-type structure of the armored division.

Time for airborne operations and Army

than primarily of a training nature. College and university advice and assistance is being obtained and will be used in this instruction. To insure uniformity of treatment in this educational instruction, it is assigned to a single instructional department. This block of instruction includes

military geography, military management, military psychology and leadership, and military history.

The 1957-58 curriculum will devote fewer hours to basic staff instruction and to instruction in larger units and administrative support.

We foresee more effective staff instruction since its introduction and initial application will be presented by a single instructional department. This allows for the elimination of duplication, use of time

held to an absolute minimum. Specifically, the student must be able to understand and properly apply principles, analyze problems based on pertinent principles and facts, arrive at sound logical solutions or decisions with reasonable speed, and communicate his reasoning and decisions with facility, both orally and in writing. Instruction is oriented primarily on developing logical and original reasoning ability in the student, rather than on the merits of any single skill or solution.

Capabilities of the atomic era have forced a critical new appraisal of the validity of old phrases, old methods, old concepts. Do they retain the same meaning? Should the same approach be used? The Command and General Staff College believes a major reorientation is needed.

saving instructional techniques, and insurance of a uniform treatment of the staff as an indispensable tool of command in the process of making and executing decisions. In addition, application of staff instruction is taught by all tactical instructional departments.

Combination of Corps, Army, Administrative Support of Large Forces, and Joint Operations into a single departmental block of instruction eliminates overlap and permits a consistent, coordinated, forward-looking approach to doctrine in these interrelated areas. Great doctrinal progress is foreseen in this entire field in 1957-58. The reduction in hours of instruction in these vital areas is compensated for by revised instructional methods which are more conducive to rapid and thorough learning.

The Instructional Philosophy

Planning and writing for the 1957-58 curriculum is guided on the following "Instructional Purpose."

Instruction is designed to develop student ability to recognize problems, determine the basic issues involved, and know where to obtain the necessary information for problem solutions. Memory work is

Particular attention is given to the long-term development of the student in military problem solving, self-expression, working as a member of a team, and character development.

Several major actions have been taken to convert this instructional purpose to reality.

We have focused on and emphasized problem solving, reasoning, and realism. In this manner we obtain a greater understanding of doctrine, and of unit capabilities. Likewise, we have focused on the integrated operations of the staff as an essential tool of command in the process of making and executing decisions, and on oral and written communications. In the process, we obtain an understanding of the functions of each general staff officer and the required staff procedures and techniques. Thus by focusing on and emphasizing the permanent qualities we wish to develop, we obtain understanding of the more transitory elements of our profession as byproducts. As we move away from tested and proved doctrine in this era of rapid change, we must adopt this newly oriented approach to insure success.

We also have adopted a new viewpoint on curriculum design. Each functional instructional department considers its instruction as a "course of study" similar to that of a university, and selects its subject matter and instructional methods for optimum efficiency. To facilitate scheduling flexibility, the College has adopted the "like-block" principle in which "lessons" in each course of study are constructed of easily interchangeable three-hour blocks. This allows new material to be added without a harmful "chain reaction" in course organization and curriculum scheduling. Variety is gained by different types of instruction within a standard six-hour day.

Improved classroom methods and techniques will maintain student interest and assist in achieving our instructional purpose. Our philosophy is reflected in two of the many recommendations of the Educa-

tional Survey Commission which the College is placing in effect:

Less time should be given to large 50-man class activity and more time to committee work, staff conferences, critique activities, research, and especially to problem-solving activities.

Instructors should be given greater opportunity for initiative in matters of methodology, and they should be held less responsible for slavish adherence to details of teaching procedures as specified in the lesson plans.

By emphasizing oral and written communication throughout all instruction, we are providing a comprehensive program to develop and evaluate these qualities in the student. His abilities in this important field will be entered on his academic report.

The examination system, which in essence controls the approach to instruction, is being revised to enforce the emphasis on reasoning ability. Short objective quizzes early in each block of instruction will test knowledge of essential facts, procedures, and techniques. Short written tests which follow will focus on student discussion of doctrine, decisions, and reasoning behind the student's decisions. The majority of examination hours, however, will be of a more comprehensive type. This concept of examinations is directed at measuring problem-solving ability and tactical and administrative judgment, rather than mere knowledge of facts, procedures, and techniques.

These changes in instructional approach will shift the burden of learning to the student and place the instructor in more of a guiding, advising, and correcting role. Instructor preparation will be beamed more at study, research, discussion, and background reading, and less at administration of lesson materials and rehearsal.

The theme of character development, and the building of sound professional values and standards will run throughout the course. This will force the students to

Major General Lionel C. McGarr was graduated from the United States Military Academy in 1928 and subsequently served with the 25th, 24th, 21st, and 30th Infantry Regiments. He went to French Morocco with the 30th Infantry Regiment, 3d Division, in 1942 serving in combat there and in Italy. He became Commander of the 30th Infantry in 1943 in which capacity he served in Italy, France, and Germany. He was named Assistant Commander, 3d Infantry Division in Germany where he served until November 1945. He graduated from the National War College in 1947 and was assigned to the Intelligence Division of the Army General Staff that year. He commanded the 350th Infantry Regiment in Austria, was Tactical Inspector of US Forces in Austria, and in 1951 was named Chief of Staff of the Tactical Command of these forces. In July 1952 General McGarr went to Korea as Assistant Commander of the 2d Infantry Division, later becoming Commanding General of the United Nations Prisoner of War Command. He assumed command of the 7th Infantry Division in Korea in October 1953. In 1954 he was designated CG USARCARIB in the Canal Zone. He assumed command of the U. S. Army Command and General Staff College in July 1956.

consider ethical implications in decisions involving moral courage and will inculcate a sound sense of values.

Summary

During the current transition period the staff and faculty are of necessity carrying the double load of concurrently phasing out the present course and developing the new. The reward, however, to the College and to the Army will be great: A course for 1957-58 which, in doctrinal content and instructional spirit, is fully in line

with the needs of the modern army in this era of rapid evolution.

The Leavenworth student next year will attend a course presenting new tactical organizations in the application of the latest doctrine which will be beamed increasingly toward the development of his reasoning ability and his long-term professional education. True to its trust, Leavenworth is orienting on the future while retaining the sound experience of the past.

From the ferment of ideas initiated by Hiroshima's awesome cloud has come revolutionary advance in military concepts—and all facets of the military art. The Army and the Command and General Staff College must be bold in decision and action to capitalize on these advances.

★ ★ ★ ★ ★ ★ ★

Ours is the forward-looking and forward-thinking Army of Tomorrow, ready to meet whatever challenge the future may hold. Here at the Command and General Staff College is being developed the kind of leadership that will keep it so, leadership that will be ready and able to cut a new pathway through any jungle of precedent, custom, or tradition which blocks the march of true progress. Such leadership leaves no avenue unexplored which might lead to a better way of doing things.

Today's officer must have the mental flexibility, the imagination, to utilize to the fullest extent the developments of modern technology. Nevertheless, he must not lose his soldier's soul in the laboratory. Above all he must have the integrity and character of a Washington, the moral convictions of a Lincoln, and the tenacity and fighting ability of an Eisenhower, a MacArthur and a Patton. These are high standards, but they are the standards of our present dedicated leadership, and will always be the hallmarks of the great officer.

Secretary of the Army Wilber M. Brucker

★ ★ ★ ★ ★ ★ ★

READINESS FOR THE LITTLE WAR

Optimum Integrated Strategy

Some time ago a volunteer group of eight officers undertook study of the problem of how to develop effective national military power flexible enough to engage in—and win—all of the various types of conflicts short of general war. The following discussion of an optimum integrated strategy is the first of two articles on the subject of "Readiness for the Little War." A second article by the seminar group, outlining a strategic security force, will be published next month.

The views expressed are those of the authors and do not necessarily represent official viewpoints.—Editor.

THE classic role of the professional soldier in affairs of state is to provide the military means to support national policy.

The soldier's hereditary task is to win battles. To this end he employs experience, both objectively and imaginatively, so that the nation he serves will be equipped with the weapons and the forces required to assure victory before the battle is joined.

Once the battle begins, he must rely on his experience and the material resources at hand to achieve victory or to avert disaster. If, therefore, the professional soldier sometimes ventures beyond the bounds of his military orbit in academic discussions, it is because a study of his profession has inscribed on his mind an indelible impression of the fate of nations which

have failed to provide for their military security.

In his 1956 State of the Union Message to Congress, President Eisenhower defined the current role of the military forces of the United States in this troubled era:

Because peace is the keystone of our national policy, our defense program emphasizes an effective flexible type of power calculated to deter or repulse any aggression and to preserve the peace.

Two aspects of this statement deserve rhetorical emphasis:

What type of power?

It must be effective.

It must be flexible.

What are the uses of this power?

To deter any aggression.

To repulse any aggression.

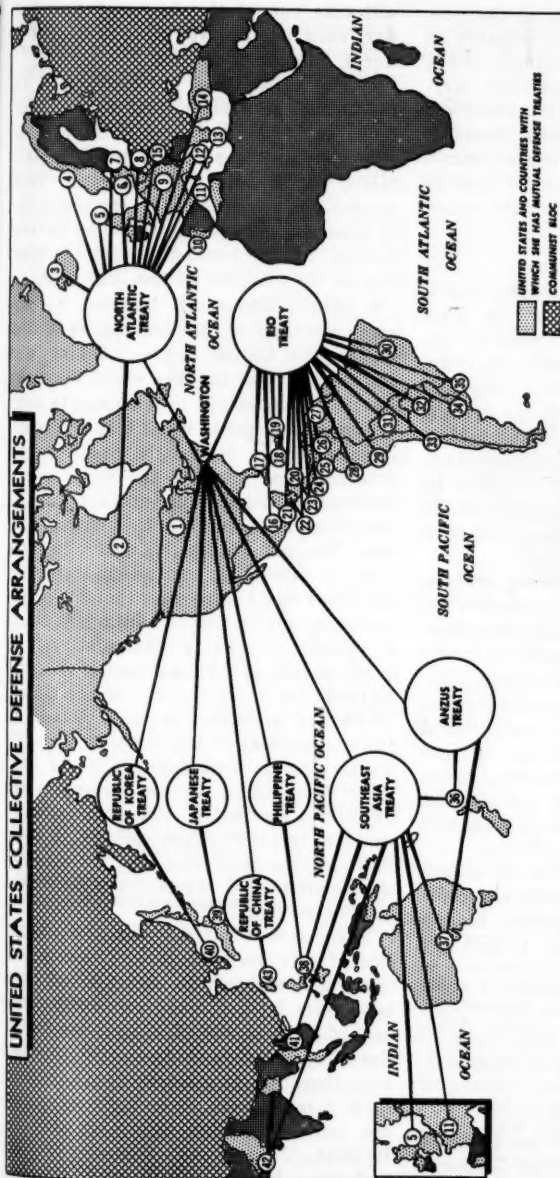
To preserve the peace.

The deterrent role of military force is not a new concept. What is new is a greater emphasis on deterrence as a primary purpose of military power. This represents a new departure in concepts of national security.

The President has stated the requirement for flexibility of military power. This flexibility ranges in scale from the delivery of multimegaton weapons to the single sentry patrolling his guard post.

The authors of this article, and the one to follow in the next issue of the **MILITARY REVIEW**, recognize that the wide range of strategic situations facing the United

Small aggressions do not warrant big bombs. Our integrated strategy must include highly mobile military forces which are capable of supporting our national policy in all types of conflict short of general war



NORTH ATLANTIC TREATY (15 NATIONS)
A treaty signed 4 April 1949 by which the United States and 14 other nations agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

SOUTHEAST ASIA TREATY (9 NATIONS)
A treaty signed 8 September 1954 which the United States and 8 other nations agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

ANZUS TREATY
A treaty signed 1 September 1951 by which the United States, Australia, and New Zealand agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

PHILIPPINE TREATY
A treaty signed 23 September 1947 by which the United States and the Philippines agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

JAPANESE TREATY
A treaty signed 1 September 1951 by which the United States and Japan agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

REPUBLIC OF KOREA TREATY
A treaty signed 22 January 1954 by which the United States and the Republic of Korea agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

REPUBLIC OF CHINA TREATY
A treaty signed 22 January 1954 by which the United States and the Republic of China agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

INDO TREATY
A treaty signed 1 October 1955 by which the United States and 10 other nations agreed to defend each other against any attack from the Soviet Union or any of its satellites. The treaty is a mutual defense pact, and it is the only one of its kind in the world.

UNITED STATES AND COUNTRIES WITH WHICH SHE HAS MUTUAL DEFENSE TREATIES
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2 DENMARK
3 GERMANY
4 GREECE
5 ITALY
6 JAPAN
7 JAPAN
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FIGURE 1.

States include the possibility of the general war which is currently equated to mean an all-out atomic exchange, and a full spectrum of limited wars with varying degrees of atomic usage to include the atomic stalemate. These articles, however, will focus on one form of limited war—the little war wherein atomics, if used at all, will be employed on a tactical rather than a strategic scale.

What Is the Situation?

A stream of articles, speeches, books, and newspaper reports over the past months have highlighted the need for increased flexibility in the ability to apply military force in relatively small amounts, and the importance of readiness for the little war. Writers such as Air Vice Marshal Sir John Slessor, B. H. Liddell Hart, and W. W. Kaufmann, and speeches by Government officials have emphasized the main points of the argument so that they are well understood. These are:

1. In a short period of time, perhaps even today, both the United States and the Soviet Union will have thermonuclear weapons and delivery systems capable of creating mutual catastrophic devastation.

2. In spite of this, the basic conflict between the forces of the free world, intent at the least on retaining the line of freedom where it stands today, and the forces of aggressive international communism, intent on encroaching on that line, will continue for the predictable future.

3. The results to humanity of the all-out thermonuclear war are virtually unacceptable, even to the Soviets. Should today's basic conflict erupt into war, it probably

will take one of the forms of the small war, such as the type of war fought in Korea, Indochina, or Suez.

4. The capabilities for delivery of the thermonuclear weapon and for such defense as is possible against enemy massive thermonuclear attack must be maintained in a state of readiness. These capabilities are essential to the prevention of international blackmail and to the confinement of any conflict, should one break out, to the category of the little war.

5. Equally important, however, to preserve the line of freedom where it now stands, the United States, working with the remainder of the free world, must also maintain a capability in readiness to deter the small war, and to win it if it breaks out.

To a certain degree the capability for deterring and winning the small war is inherent in the instruments designed for deterring and winning the larger scale war. The requirement, however, is for a tailored capability, one which focuses on the small war and ensures that the proper measured application of military force can be brought to bear as required.

Let us look at the conditions of the small war—at its likely locales, at the threats which are presented in those locales, at the environment in which the free world's military forces must function in the small war. From these we can determine the guidelines for that portion of an effective national strategy which emphasizes readiness for the small war, and the essential characteristics of the military component of that strategy.

Take a look at the "periphery"—the line of freedom's advanced outposts that trace the edge of the Communist dominated bloc from Finland around the crescent of Eurasia and back up to the Bering Sea (Figure 1). In this generally unstable area there are two places where military force joining with an enlightened policy has provided a high degree of stability. In both these areas, European NATO and the Japan-Korea-Taiwan complex,

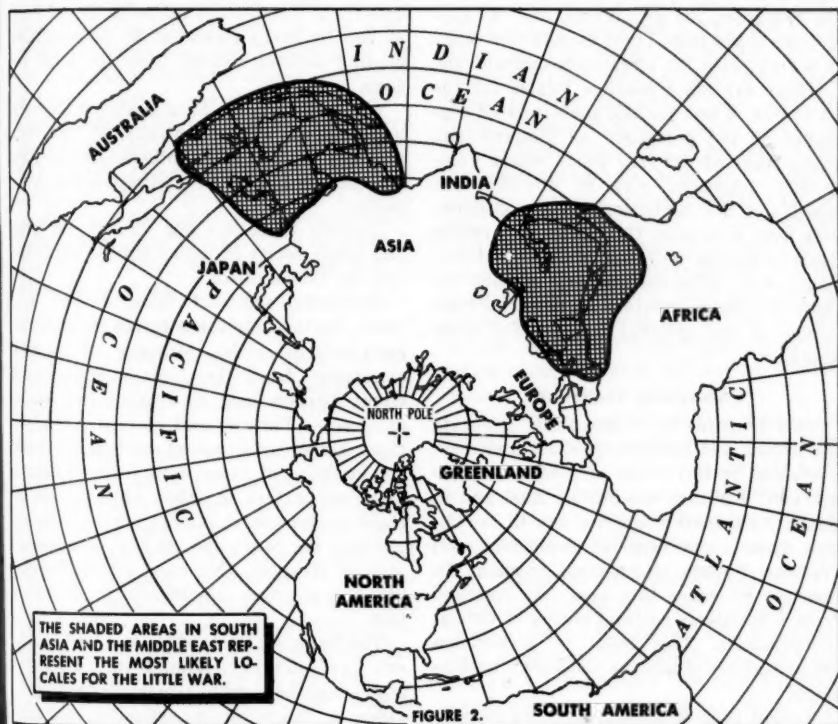
The following officers formed the study group: Colonels Raymond L. Shoemaker, Jr., Artillery, and Peter L. Urban, Artillery; Lieutenant Colonels John Clapper, Jr., Signal Corps; William D. McDowell, Infantry; Daniel A. Raymond, Corps of Engineers; John K. Singlaub, Infantry; Cecil C. Helena, Infantry; and Major John H. Cushman, Infantry. All are members of the faculty of the U. S. Army Command and General Staff College.

United States and allied joint forces are committed to demonstrate the free world's intention to resist force with force. The presence of US land forces in these areas is no coincidence. They represent by their deployment a limited application of military force of the US and are tangible evi-

thermonuclear threat. These are the likely locales of the little war.

THE DANGER AREAS

Because of their importance to the free world, and their sensitivity to Communist pressures, and because they lie in the historic direction of expansion of the two



dence that the line of freedom will give way no further.

The remainder of the fringe of the Communist bloc requires analysis to see how well our current military capabilities meet the need. There we may find that the danger is from the cumulative effect of "creeping aggression," using political-military tactics difficult to deter with a

major Communist powers, two general areas of the periphery represent perhaps the most likely locales for the little war. These are the Middle East and South Asia (Figure 2).

The Middle East is the area bounded by Turkey, western Pakistan, and the Nile Valley. Its strategic importance approaches that of Western Europe and is derived

from its geographic position and from its oil. Loss of this area would be a catastrophic blow to the free world and a great gain to the Communist bloc.

South Asia is the area from Taiwan, around the periphery to India, and south-east into Indonesia. The retention of this area is vital to the free world because of its resources, its population, and its geographical position. These factors also make it a rich prize for aggressive communism.

There are other possible locales for the little war. These include such isolated segments of the periphery as Finland and those areas of the free world where Communist influences may be directed, but which are not contiguous to the Communist bloc. However, this series of articles deals primarily with the Middle East and South Asia, since the military solution for these two areas provides an essential component of the national strategy for other areas.

Undergoing Transition

Two features of these areas generate the unrest and instability which invite exploitation by Soviet-led international communism: First, in the Middle East and in South Asia most countries are in transition from some form of dependency on Western Powers to national freedom. In the last 50 years this area has emerged from a relatively colonial status to virtual independence. This leads to a common characteristic—sensitive emergent nationalism.

Second, both of these areas are generally underdeveloped and just beginning to feel the impact of modern technology. These ancient cultures and ways of life are trying to adapt to this impact, and the result is the growth of major social, economic, and political problems throughout the area.

A country-by-country survey of these areas leads to general conclusions which reveal the major factors which make them attractive targets to aggressive interna-

tional communism. Within these general conclusions there is a wide range of local conditions.

The Middle East

Politically, many governments in this area are susceptible to attempts to undermine their stability, and in virtually every country a Communist minority is working at this by every means at its disposal, including inciting unrest based on local issues.

Economically, the area is almost entirely undeveloped, with essentially an agrarian economy on which a fantastically wealthy oil economy has been superimposed in some cases.

Socially, there is a low educational level and much social injustice invites exploitation by Communists.

Militarily, most of these nations are weak, having only those forces sufficient to keep internal order. Military advice and assistance from the United States and Great Britain help to sustain the forces of Greece, Turkey, and certain Arab nations. Israel has acquired military strength by purchase of arms with funds collected from supporters in other nations. All of these nations must import major items of military hardware and, as has been demonstrated recently, this need offers the Soviet bloc a prime opportunity for penetration.

The Baghdad Pact, which ties the "northern tier"—Turkey, Iraq, Iran, and Pakistan—together with Great Britain, provides a start on a collective security framework in the area.

The numerous disputes and rivalries in the area offer ideal opportunities for outside intervention to generate turmoil. The Arab-Israel conflict is not finally resolved. The status of the island of Cyprus offers another issue to any outside power anxious, as is the Soviet Union, to create disorder in furtherance of its own ends.

Acceptable political solutions in this troubled region will require a wisdom, a

maturity of judgment, and a steadfastness of purpose which, historically, have not always distinguished the external affairs of the United States. We must continue to have as our goal an enlightened and realistic diplomatic effort—and the pursuance of economic and political policies to accompany it.

To fit into the national policy of the United States with respect to this area, military means adequate to the task are required. The strategic atomic capability is only a partial answer to the military requirement. Also required is the buildup of friendly indigenous forces to the point where they assure the stability of their governments and the provision of a ready, mobile, and powerful triphibious military force available within an allied framework and policy which anticipates the use of force as required.

South Asia

Less explosive today, perhaps, the situation in the countries of South Asia is similar in many respects to that of the Middle East.

Politically, most of these nations also evidence the instability of young nations, and Communist leaders are actively exploiting the tendencies of many of them toward "neutralism" and their historical animosity toward "colonialism."

The pressure of Communist China and the presence of a susceptible ethnic Chinese element in many of the countries contribute to the instability of the area.

Economically, because of the difficult transition from a "colonial" economy, there is widespread imbalance in much of the economic structure causing problems affecting all aspects of the national life.

Socially, in some areas, such as India, Ceylon, Malaya, and Indonesia, population and production capacity are dangerously out of balance, and improved medical technology will accentuate this problem. Religious animosities between Hindus and Moslems further compound the problem.

Militarily, most of these nations can support only sufficient military force to maintain internal order. The United States is assisting certain nations in developing their armies, but many of them built their forces without technical assistance and hence lack military hardware and production potential.

The Southeast Asia Treaty Organization is a loose grouping of Thailand, Pakistan, the Philippines, Australia, United Kingdom, (including Malaya and North Borneo), New Zealand, France, and the United States. Although Laos, Cambodia, and Southern Vietnam are not signatories, the member nations have in a separate protocol included these countries in the area afforded protection by the treaty. This organization provides a basis for a collective security arrangement in the area, in that the pact stipulates that an armed attack against any of the member nations would endanger the peace and safety of all and each will act to meet the common danger.

The present and expected economic, political, and social turmoil throughout the Middle East and South Asia creates a situation which offers a very attractive target to international communism with its full arsenal of techniques.

SHAPES OF PENETRATION

Having established the *desirability* of these areas to the Soviet and recognized their vulnerability to penetration, two logical questions emerge: How can such penetration occur? And what can we do about it?

Political Intrusion

Of the almost infinite variety of political-military techniques available to the Communists, five typical of the entire gamut will be isolated and discussed in this article. Four are basically intrusions—the overthrow of non-Communist governments or outright invasions—and the fifth, while perhaps more subtle, is equally

insidious. It sets the stage in appropriate cases for one of the first four through diplomatic, political, economic, or military harassment of free world areas.

Probably the most familiar form of the intrusions uses Communist political strength existing within the nation concerned, Communist political techniques, and international pressures. Capitalizing on favorable socioeconomic conditions when possible, the Communists use these factors in an attempt to overthrow neutral or pro-United States governments and to replace them with Communist or pro-Communist regimes. Use of military force incident to such overthrow is not planned. Any nation with strong dissident internal political elements, ignorant of the true aims of international communism, provides a soil which the addition of a little Communist fertilizer makes ripe for this type of intrusion. Obviously, many of the peripheral areas are in this category.

Our strategy to combat this threat falls into two phases: first, to reduce those conditions which favor the success of such Communist action; and, should these efforts fail, second, to regain at least the previous *status quo*.

Must Better Conditions

Within the first phase of this strategy our present efforts should be directed toward bettering economic conditions through means such as financial aid and technical training, using United Nation agencies when appropriate; toward developing military strength through Military Assistance Advisory Groups, education of military leaders in US Army schools, arrangement of mutual defense pacts, and similar actions. For the long pull we must continue to foster the development of strong, western-oriented political groups, maintain close contacts with military leaders, and encourage national unity.

A sound base for the national economy of the peripheral nations must be built before any real stability—political, economic,

or military—can be realized. This will require encouragement of independent economic development, creation of markets for products of these peripheral nations, and transformation of ancient agricultural methods to those more suited to the press of accelerated population growth.

The Communist political threat is best negated through diplomatic and economic means. However, the existence of allied land forces of appropriate size and mobility which are readily available for use in support of diplomatic action in the area would be a serious deterrent to the pro-Communist elements. There is little to suggest that massive retaliation or any application of our air-atomatic capability could be employed with success. Militarily, targets would be nonexistent; politically, the casualties among friendly civilians would be unacceptable.

Need Flexible Capability

A properly constituted land force, on the other hand, with its capability of limited, selective employment, is ideally suited as the diplomatic tool. As such, it must be able to carry out any one or a combination of actions, including an effective show of force; active reinforcement of national armed forces; and independent action.

Prior to commitment, essential groundwork must be laid to expedite the formation or employment of this force. This groundwork must include at least preliminary action toward establishment of lines of communication, detailed local mapping and air photo survey, and stockpiling of required military equipment. More complex will be the diplomatic steps required to ensure a legal basis for employing a US force within the nation affected, to govern their actions while there, and to cover their withdrawal after restoration of order.

Regardless of its complexity, however, the problem must be solved *before* an overt Communist move if fatal delay is to be avoided. Current international agreements

must provide for this employment and commit this Nation to come to the aid of displaced democratic governments. The important need is to be prepared to act immediately and without equivocation once the Communist intention becomes apparent.

For example, the presence of a strong US force in the vicinity of Czechoslovakia backed by a known US determination to prevent further Communist expansion might well have prevented the downfall of that hapless democracy.

Politics Plus Force

A second type of intrusion couples political action with the use of force in conducting internal wars in which conflict varies from scattered subversive activity and guerrilla operations to major civil wars. Under this type of intrusion internal rebel forces receive Communist assistance in the form of command and technical and logistical aid. As in the first threat discussed, the aim is the ultimate establishment of a Communist or pro-Communist government in the area concerned. The 1949 crisis in Greece furnishes a good example of Communist efforts to make this threat a reality, and the more recent case of Vietnam is certainly analogous.

Politically and economically, our counteraction to this threat parallels that discussed above. Militarily, the picture is somewhat different in that the likelihood of a requirement to employ US forces is substantially increased. Here again, moreover, the air-atomic threat is not nearly so realistic as the use of a properly balanced land force. (Let the air proponents answer the question: *Granting our national policy seeks to avoid total war, whom will you attack with weapons of mass destruction?*)

The required capabilities of the proposed land force are similar with increased emphasis on antiguerrilla activity, civil disturbance control, and small unit operations training.

The Grecian intrusion was defeated without use of US combat forces, but much time, many lives, vast properties, and millions of US dollars were consumed in the process. A military force, moved into Greece at the proper time, might have saved much of this loss. Likewise, the mere presence of such a force, located so as to be readily available for use in Greece, might well have deterred Communist action in the first place. In fact, the existence of British forces in Greece in 1946 effectively countered the Communist threat at that time.

Invasion by Satellites

Overthrow of friendly governments through outright invasion is another menace posed by the Communists and is especially appropriate for use in the periphery. Such an invasion may be by satellite troops, assisted by covertly employed Soviet forces and materials.

Our immediate strategy in countries faced with the apparent likelihood of such an invasion must provide for substantial military aid, maintenance of major sea and air elements within range of the threatened area, mutual assistance pacts with surrounding nations, and existence of a US land force in being as a threat to Communist overt action. This force must be capable of fighting a major campaign in the affected country regardless of the local conditions of terrain, weather, transportation, and other factors. It should be familiar in detail with the country preferably through previous maneuvers on the ground. The nation should be physically prepared for efficient reception and expeditious employment of the US force; at the very least, a plan of delaying action by national forces must be in existence and integrated into the military over-all plan. Once the invasion has occurred, the commitment of the US force becomes necessary and should be carried out as soon as the local government requests assistance. Here again, massive retaliation, as the

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exclusive or even the major instrument of national policy, is out of place. It is incapable of limited application.

Beyond the scope of this article and the capabilities of the force to be proposed is the question of punitive military action against aggressor nations. Our policy must provide for positive action, using whatever forces may be required.

Korea, of course, is the prime example of satellite intrusion. Had a fully manned, adequately equipped US force been available in Japan for commitment against the Communists within a day or two, the probable difference in outcome is obvious. Such a force could have stopped the North Korean attack before it was fully developed and placed the US in a much more favorable position in the eyes of the world and especially of the still free but restless areas of the Far East. In fact, the presence of such a force in nearby Japan might well have deterred the North Korean attack completely.

Outright USSR Invasion

Invasion also may be performed by Soviet forces or by satellite forces openly assisted by significant Soviet forces. The pre-World War II invasion of Finland furnishes an example of the use of this form of intrusion. Had it been reinforced by even moderate outside assistance (in addition to the brigade of gallant Swedish volunteers), the magnificent defense put up by the Finns might have proved disastrous to the Soviets.

This particular form of intrusion and its rebuff by military actions is the most dangerous to world peace, because the commitment of a sizable US force in direct physical opposition to significant Soviet forces would be almost impossible to keep localized. Therefore, a US military force, immediately available and clearly designed to counter such an invasion, would serve as a strong deterrent until such time as the Soviets are actually willing to risk World War III.

Inducing Tension and War

Current events show that the Communists also have the capability of inducing or encouraging war or critical tension between non-Communist countries in such a manner as to require the possible employment of US forces for the establishment of order or the protection of US interests in the area.

From the immediate point of view, this requires that our strategy must seek to foster short-term agreements or nonaggression pacts. We must be prepared to apply economic and political pressure as may be necessary. Our long-term objective, of course, must be to remove the causes of friction and achieve a lasting peace between the nations concerned.

In any case, we must face these tensions on a broader basis than acceding to pressure groups or the most articulate minorities within our own Nation. Only by an honest demonstration of impartiality and willingness to recognize legitimate national and ethnic interests can we achieve real agreement among these nations.

The dissipation of our strength in wars in which not even local Communists are involved is a total gain to the USSR. However, it is essential that the US be prepared to make every effort to bring together our allies when their objectives clash.

Obviously, a flexible and mobile force of the magnitude which will be proposed will be adaptable to many types of employment. The situations discussed are typical; others would include amphibious or airborne commitment as part of a larger force, special intelligence operations, provision of guerrilla forces, and defensive operations such as holding of beachheads or island bases upon the outbreak of a major war.

OPTIMUM INTEGRATED STRATEGY

The prime objective of our strategy must be to maintain or establish an environment favorable to US interest. Confronted with the various threats imposed by inter-

national communism, and plagued with a potentially explosive politico-military situation among many of our friends, still we must be prepared to thwart each Communist inspired attack. To achieve this end our strategy should be based on the following precepts:

Seek to gain and maintain the approval and good will of all foreign nations by means of peaceful economic and social intercourse.

Retaliate with whatever degree of force is applicable to the occasion in event of Communist inspired attack.

Adopt, announce, and prepare to implement a military strategy that will permit us to move and, if necessary, rapidly commit forces capable of gaining selected strategic objectives within any peripheral area.

This strategy must encompass the capability of being reinforced by other United States forces, by indigenous military forces in being, and by military forces of other nations. At the same time, this strategy must include the ability to transcend national boundaries in order to gain decisive strategic objectives.

At a casual reading, perhaps the most unusual aspect of this statement of strategy is that it commits the United States to do little more than we are now committed to doing and, at the same time, permits the employment of massive retaliation if the situation justifies such an action. On the other hand, the strategic air enthusiast will be reluctant to accept such a strategy because it fails to admit the primary importance of massive retaliation.

The first part of the strategy development recognizes the indisputable fact that every reasonable and honorable effort should be devoted to peaceful solutions to international problems. It also admits the essentiality of economic intercourse between nations.

The second precept of our military strategy is the backbone of our policy of

deterrence. Considering "massive retaliation" at one end of the spectrum and the show of force at the opposite end, we must have the ability to apply any appropriate degree of force by maintaining a complete spectrum of types of force. Obviously, such a force spectrum entails the use of land, sea, and air elements, and for the little war, the land element, supported by sea and air elements, will be the primary instrument.

It is impossible to rule out general atomic war but General Maxwell D. Taylor established the proper perspective when he stated:

Since becoming Chief of Staff, I have frequently commented upon the increasing danger of so-called small wars which may erode the borders of the free world. Particularly as our air-atomic deterrent capability increases, it becomes increasingly unlikely that any aggressor will deliberately embark on a course of action calculated to bring on general atomic war. It is more and more apparent that such a war would be a mutually suicidal action from which no true victor could emerge.

Enlightened consideration of the military potentials of the East and West thus demands that our military policy be sufficiently flexible to cope with aggression of any given magnitude.

The third essential is that we be prepared to employ force quickly, effectively, and unequivocally should diplomacy fail. Furthermore, our intention to adopt and implement this strategy must be clearly announced and unquestionably accepted by both friends and potential enemies. The value of such an understanding of intentions is best demonstrated by the fact that the Chinese Communists have not invaded Taiwan. Had we been as explicit in 1949 the crises in Greece might never have occurred; a prior announcement of our military intentions might have averted the Korean affair.

Forces on the Spot

Also embodied in the third precept is the requirement for forces in being of the proper type with a high degree of mobility. The highly mobile Strategic Air Command with its immense retaliatory capability is hardly suitable for quelling a Communist inspired *coup d'etat* or preventing another Indochina. But the mere existence of a deterrent land force is not in itself sufficient; 20 divisions spotted around the world have only a limited effect at a given point on the periphery.

On the other hand, a relatively small force in being at a potential trouble spot has a deterrent effect if the aggressor knows that our deployed forces possess sufficient mobility to rapidly mass significant forces behind the scouts in the vanguard. For this reason implementation of the proposed strategy requires existence of minor forces in being at or near all potential trouble areas with the added capability of manifold expansion of these forces by local or imported means in the event of necessity.

The fourth part of the strategy requires that United States forces in being in a threatened area be able to assimilate or be assimilated by other United States or indigenous forces. Our political commitments and alliances are designed to ensure that United States forces will not be committed without assistance in any peripheral nation; however, the amount and type of military assistance that will accrue as a result of alliance agreements will vary from local police and friendly guerrillas to well-equipped divisions. Our military forces must be prepared to fight on commitment but, at the same time, to assist in organizing, training, and equipping additional military units from the local population. Although there are inherent weaknesses in any alliance structure, our military policy must be predicated on exploiting the basic strength inherent to our political alliances.

Provide No Sanctuaries

Perhaps an objectionable feature of the proposed strategy might be sought in the fifth part of the strategy, specifically the phrase "... to transcend national boundaries. . . ." Although the United States as a nation is reluctant to adopt a policy that might be labeled as "aggressive," it is imperative that we face the situation realistically based upon our unfortunate experiences in Korea. One of the basic facts of peripheral warfare is that it will be initiated and logistically supported from without utilizing only limited forces within the combat area. Like major warfare, then, the most effective means of halting the exertion of might is to starve the creature of aggression. If the subdued but still flailing aggressor is permitted to withdraw gracefully to sanctuary, the final decision must be made another day and on a battleground of the once-subdued creature's choosing. The often registered contempt of the Chinese Communists for allied military might is well justified as long as the Bamboo Curtain is a barrier. Other Communist-controlled countries can adopt the same attitude if thin red lines on the map become an insurmountable obstacle to an otherwise victorious army.

The proposed military strategy is in consonance with our national strategy. Yet, at the present time, the United States does not have a highly mobile military force in being that gives us the capability of immediately retaliating against small-scale Communist aggressions on a graduated retaliatory basis. Small aggressions do not warrant big bombs.

Current efforts to increase the economic potential of our allies on the periphery will eventually result in an improved military potential in these countries. Although not measurable in dollars or divisions in the immediate future, improvements in living conditions in the have-not nations will serve to weld them more closely to the Western bloc.

COMPOSITION OF THE FORCE

The specific composition and command structure of the additional type force required to implement the proposed strategy will be discussed in detail in a subsequent article. A consideration of the desirable characteristics of such a force is necessary here, however, to establish the validity of the military aspect of the proposed optimum integrated strategy.

In the first place, the conditions under which such a force may be committed serve to shape the force. It may be required to fight alone for a variable period of time, it may be required to fight in conjunction with local national forces or local guerrillas, or it may fight in coordination with other allied forces. Add to these varying conditions the fact that it must be capable of fighting in a relatively undeveloped area with no lines of communication or in a well-developed area with well-established lines of communication. Local procurement potential in the combat area may vary from nil to plenty. The attitude of the local populace may vary from active opposition to all-out military support. The local military potential may vary from the gendarme's club to a significant number of divisions. The force must possess both a military capability and a political capability. Its Army element must be transportable by land, sea, or air; it must be capable of fighting immediately upon landing and without reinforcement; it must be capable of sustained action; it must be capable of assimilating or being assimilated by indigenous forces in being; and it must be capable of operating for a limited period of time supported entirely by air logistics.

The Navy component of the force must include its own carrier arm with attendant firepower and logistical elements, an antisubmarine force capable of sustained action, and a logistical element capable of sustaining the other elements of the force from prestocked bases near the periphery.

The air component must have a tactical element capable of immediate commitment, it must provide essential strategic mobility to the Army portion of the force, and it must be capable of providing tactical air support at required radius distances.

Force Must Be In Being

Such a force must be a part of the military forces in being and if committed must be temporarily replaced by other forces. Requirements for this force cannot adversely affect the mobilization status of NATO or other major alliance forces in being unless the constituent elements can be rapidly replaced. Existing stockpiles and procurement forecasts must be revised to support the force if committed in any peripheral area.

A vexing problem inherent to the present military-political situation is our dependence on the current cooperation of our allies to permit prior establishment of military lines of communication. It is all well and good for us to propose that air lines of communication can be established wherever necessary but in view of the present tendency to spend more and more Air Force money on bombers and less on transport aircraft, such a proposal is not realistic. To possess the required degree of combat readiness we must have ground bases and depots stocked and in operation prior to commitment of major forces. Preferably these installations should be relatively close to the area of contemplated operations and should utilize land or sea transportation routes. Floating logistical support means supplemented by air lines of communication operating from bases near the periphery must be capable of functioning with minimum delay.

CONCLUSIONS

The United States must adopt an optimum integrated strategy which supports and strengthens our military-diplomatic-economic potential. The objective of this

strategy is to deter general war, to maintain, as a minimum, the *status quo* in our present alliance structure, and to prevent further Communist encroachment in peripheral countries. Such a strategy includes a calculated risk for peripheral war but greatly reduces the risk of major war.

The roots of the problem are many and varied but the integrated strategy proposed provides not only the necessary force but announces the intention to employ as many elements of the force as are necessary to sustain our national objectives.

The integrated strategy must encompass economic aid, diplomatic maneuvering, and the threat of or actual use of military force either consecutively or concurrently. The strategy must be capable of execution in a minute amount or to the maximum degree at the opportune moment. It must be defensive-offensive in nature and possess the inherent momentum to

take maximum advantage of Communist errors.

Basic Policy Unchanged

The proposed strategy does not depart from our historic policy of noninterference in internal affairs of other nations but, at the same time, it gives us the ability to oppose Communist interference in non-Communist areas.

The prime essential of the proposed military strategy is the establishment of an earmarked military force in being to support national policy.

The force required to implement this strategy must consist of land, sea, and air elements with the necessary logistical potential. The combined force must have mobility, flexibility, and psychological impact in excess of current capabilities and must be capable of immediate commitment in total or in part. (To be continued.)

This military strength, to be impressive, must be properly balanced strength, applicable to any likely situation. By balanced strength I do not mean, as the term is sometimes interpreted, equal strength of Army, Navy, and Air. It should be recognized that increases of one type of strength beyond a certain point eventually encounter the law of diminishing returns in measures of deterrence. Balanced strength means flexible, proportioned strength, including military means in various forms—means appropriate to cope with small wars as well as big wars, with wars in jungles or mountains as well as in Europe, with wars in which atomic weapons are used, and with those in which atomic weapons are not used. Balanced strength includes the means to put out brush fires promptly before they can spread into general war.

Nowadays, the Army is developing a new awareness of the obligation to deal with brush fires. Since World War II it has been the threat of a great atomic war which has engaged most of our attention. To counter this threat we have expended great efforts in developing an atomic deterrent in order to assure our national survival. This effort has been properly the primary one of this period but the time is coming, if it is not already arrived, when our defenses need to be examined particularly with regard to their readiness to deal with the small war, because if not quickly countered, the small war may lead to that big war which we are all so terribly anxious to avoid.

General Maxwell D. Taylor

John Bloch--A Neglected Prophet

Adolph G. Rosengarten, Jr.

IN AUGUST 1898 in a rescript of Czar Nicholas II the Imperial Russian Government proposed an international conference to discuss means of reducing armaments and ensuring the benefits of real and durable peace.

With a view to guaranteeing such a peace, the proposal observed that the great powers had lately concluded alliances and had developed their military forces without shrinking from sacrifice. These efforts had been without result. The ensuing armed peace was a crushing burden, borne by the peoples with increasing difficulty, and might well lead, the proposal concluded, to the cataclysm it was desired to avert.

During the following spring, the first Hague Peace Conference was held. It neither ended the armed peace nor reduced the pace at which the race for superiority was being run. A second conference in 1907 produced no better results, and the European nations continued to drift into, or to march toward, the holocaust of 1914-18.

The present intention is to resurrect a book which was widely believed at the time to have influenced the czar's decision to issue the rescript. Written by a Russian, it consists of six volumes and is comprehensively entitled *The Future War in Its Technical, Economic and Political Relations*. Its interest lies in the accuracy of the predictions which it made about the tactics which would be used in World War I, the strategy which would end it, and

the social and political conditions which would exist in Europe when it was over.

Significantly, this forecast, although not invariably correct, ran quite contrary to orthodox, prewar military doctrine. Furthermore, the work gives a picture of European society and economy as seen at the time by a penetrating and well-placed observer. Finally, its existence was so extensively publicized by reviewers and in articles that it may well have contributed to the climate of both governmental and public opinion about the cause, the course, and the consequences of war; a climate which made possible the peace conferences whose ultimate consequences may prove to be greater than their immediate ones.

Influences Toward Peace

There were, of course, other contemporary influences—from episodes on the backstairs to negotiations conducted in the public view—on the kings, governments, and peoples of Europe. It is a historical commonplace that "the Russian proposal was due to financial stringency and the inability to keep up with the armaments of Austria and the other powers." Also voluntary, unofficial societies, like the Arbitration Alliance and the Interparliamentary Union, were currently agitating for the New Jerusalem when war would be no more. And the Roman Catholic Church, always interested in promoting peace, took credit in a periodical with having initiated the idea of the peace conference,

Attaching greater importance to the common man and to the rise of the modern industrial state, John Bloch contradicted orthodox military doctrine in forecasting the course and consequences of World War I

claiming that the papal nuncio had suggested it to the czar at his coronation in 1894.

In contrast to these utopian appeals, John Bloch's was a reasoned and realistic demonstration of the need to find some better means than war of settling international disputes. Unfortunately, he was discursive, prolix, repetitious, and overwhelming in detail. His targets were seemingly the sovereigns of Europe and their civil and military advisors, rather than the middle and lower classes, although implicit throughout is the reliance on public opinion as the ultimate sanction. In effect, Bloch was a prophet with material honor, but to whom inadequate attention was paid by the Romanovs, the Hapsburgs, and the Hohenzollerns, to their sorrow, and by the professional European soldiers to their shame.

Advisor to the Czar

Before summarizing his argument mention should be made of the man and of the steps he took to make himself heard. Jean de Bloch, to use the French style, was born in Poland in 1836. His career in business brought him riches and social status, for the czar, not birth, gave him the particle which preceded his surname. He made a fortune in banking and rail-

road building, and it was as an expert in railways that he went with the czar and his staff to the theater of the Russo-Turkish War in 1877. It was on this journey that he acquired what is currently known as a dim view of the top brass, an attitude which he took but small pains to hide in his writings.

Following earlier books on Russian finances and railroads, Bloch's work about war, profusely illustrated, diagrammed and accompanied by an atlas, appeared in Russian in 1898. According to hearsay evidence, so strict was Russian censorship that a personal interview with the czar was needed to secure permission to print the book.

A French edition entitled *War, a Translation of the Russian Work 'The Future War From Its Technical, Economic and Political Points of View'* was issued shortly thereafter. And Bloch had a German edition published in Berlin in 1899.

Based on a comparison of the detailed tables of contents and on some spot checking, the Russian original,¹ save a section on how to provision Warsaw in case of siege, appears to have been faithfully and completely translated into both the French and German editions, although only the Russian contains the extensive bibliography. Syllabuses which were condensations of four chapters from the last volume in which Bloch had summarized his findings and drawn his conclusions also were published in France and Germany in 1899 for popular consumption.

English Editions Weak

The complete work has never been translated into English. One-volume editions appeared in both England and the United States in 1899, identical except for the

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¹ Let there be no mistake: the author does not read Russian. The complete Russian edition is in the Charlemagne Tower Collection of the University of Pennsylvania whose library service kindly included furnishing the comparisons referred to in the text of this essay which is based on the French edition. A copy of that edition is possessed by Yale University. German editions are at Princeton University and elsewhere.

titles: the former being *Is War Now Impossible* and the latter *The Future of War*. Each contained a prefatory conversation between the author and William T. Stead, an English magazine editor who was last seen alive reading a book in the smoking room of the *Titanic*. In it Stead stated that what followed was a translation of the sixth and final volume of the Russian edition. This is not the case and the English reading public actually got a haphazard abridgment constructed of bits and pieces drawn from the entire work. For example, in volume five of the Russian, French, and German editions the growth of 19th century, European socialism is described at length and the prediction made that it would mature under the stimulus of war. Actually, the only parts of this volume incorporated into the English versions are excerpts from two gory chapters on wounds and the care of the wounded.

Thus the unity and many pertinent observations of the original are lacking in our editions and some local experts subsequently have criticized Bloch for his inaccurate forecasts. However, in the original many of those which have proved to be wrong were qualified, or they may have been inserted either to placate the Russian censor or to serve a particular end. That the English were given such an inadequate summary is not surprising when it is remembered that the same year that the czar issued his rescript and Bloch published his book, Kipling admonished his countrymen to make "no truce with Adam-Zad, the Bear that walks like a man." Whether this warning was the riposte to the current Russian expression that "God had made the English and somebody else the other people" may be left to conjecture.

A Constant Campaigner

In an unofficial capacity Bloch attended the Hague Conference of 1899 where he gave the delegates a series of private re-

ceptions accompanied by an ample buffet and a lecture by the host. Because those lectures, which were later published in France, were so frank, it was expected that Bloch would get into trouble on his return to Russia. This did not occur and he set up a booth at the International Exhibition held at Paris in 1900 at which the horrors of war were shown by means of lantern slides. He also wrote *Some Lessons of the Transvaal War* which appeared in 1900 in an English magazine. Finally, before his death in 1902, he established a Museum of War and Peace in Switzerland.

Since the appearance of the English abridgment, bearing as its title the rhetorical question *Is War Now Impossible*, there have been both small wars and big ones. Therefore, Bloch's six-volume brief, designed to prove that in fact war is impossible, can well be regarded as a labor of love and reading it a waste of time. But the word "impossible" also may signify the impracticable, and in the sense that the ends sought by those wars were not obtained by them, the experience of mankind in the 20th century supports Bloch's position.

Analyzed Military Art

To develop this position he examined the state of the military art as it existed in 1898 after the 20 years of European peace. The recent invention of smokeless powder not only permitted individual riflemen and the combat unit to remain concealed, but its greater power flattened the trajectory and increased the range and the penetration of the bullet. In addition, a reduction of the caliber of the rifle, and consequently of the weight of the cartridge, not only bettered its accuracy but augmented the ammunition available in battle.

Inevitably, the next war would produce enormous casualties, because these improvements, including Maxim's machine-gun, combined with corresponding develop-

ments in artillery and the other arms, would make movement prohibitive in the enlarged battle area, in general, and in the attack, in particular. (Figure 1.)

The instinctive reaction on all sides would be to dig in. Yet victory could come only to the side which did attack, and that meant leaving the trenches. Finally, the modern army was no longer composed of professionals but rather of the masses and, therefore, its solidity in an attack

resemble ant hills, which is exactly what happened in World War I.

Foresaw New Problems

The second volume is called *War on the Continent*. Bloch's point of departure was that competition had forced all the European countries to maintain larger and larger armies. Economic and political considerations required that this trend be met by the conscription of more and more



Figure 1.—French infantry in a close order bayonet attack, a machinegunner's dream under the leadership of reserve officers against heavy fire would be questionable.

From these innovations Bloch deduced the tactical superiority of the defense over the offense. He emphasized the difficulties of keeping mass armies supplied with food, fuel, and ammunition. He confirmed the reign of the infantry as the "Queen of Battle" and he predicted that the future war would consist of battles for fortified positions and that battlefields would

men for shorter and shorter periods of service. On mobilization, the ranks then would be filled with trained reserves drawn from civil life. Consequently, the next war would engulf in its maelstrom most of the nation's workers and generate military and civilian problems which had not been considered by the soldiers and statesmen.

An important military problem was whether mankind, in general, and each country, in particular, was competent to

furnish the leadership, from field marshal to corporal, needed to control and supply mass armies. Having adopted Scharnhorst's precept that a number of men of talent could equal one of genius, Germany had developed an officer corps which excelled in training and initiative, the latter being a quality lacking in France and Russia. And mindful of Moltke's precept that she owed her military success to the school-teacher, illiteracy had been eliminated and, therefore, Germany had the better non-coms.

If there was room for improvement in education in France, where 131 per 1,000 of the conscripts of 1886 were illiterate, a worse situation existed in Russia, where the ratio was 687 per 1,000. But Bloch believed that this lack of book learning would be offset by the well-known native intelligence of her peasantry.

Individual More Important

Another question, and a vital one, was the new importance of the individual. The rank and file would no longer be composed of automata, but of thinking human beings, albeit softened by civilization. While Russia's strict discipline was praised, Bloch questioned whether it would stand up in modern war, being grounded on corporal punishment. Based on 11 assumed military characteristics (for example, one was the confidence of the soldier in his weapons and in his leader) he rated the individual German soldier as the best on the offensive with the Russian, Austrian, French, and Italian following in that order. On the defense the Russian and the German were equal but the defending Russian was, if only on paper, superior to the attacking German.

These considerations of the individual were followed by a qualitative comparison of the various European armies, in which the use of history, among other factors, permitted discussion of national weaknesses. One was the mutual jealousy of Russia's leaders, for battles and campaigns

often had been lost, Bloch wrote, because a Russian general in difficulties would never be helped by another who was less involved. But for each qualitative national weakness Bloch found a compensating advantage, and concluded that *no major European military establishment was potent enough to win, and win quickly, a modern war.*

The importance of quantity in that war sprang from the ordering of the European powers. The probable participants would be France and Russia on one side and Germany, Austria, and Italy on the other. Each coalition disposed of an equal number of regulars and reserves, being in each case something over five million.

Although the Triple Alliance had the advantage over the Dual Entente in immediate readiness and speed of mobilization, Bloch satisfied himself that no plan of campaign . . . conditioned as each was by size, the problems of supply and the state of the military art, all factors limiting the ability of any army to maneuver . . . either singly or in combination, which was open to one side or the other, could bring a quick victory. Envelopment in the west was improbable because both Belgium and Switzerland had fortified their frontiers, while in the east space was too vast for a turning movement to be decisive. Bloch predicted that the next war would be a long one.

Predicted War's Results

Civilian involvement in that war obviously would become greater the longer the war continued and, of necessity, would generate economic and social conditions which could well become disruptive and explosive. The existence of these conditions led Bloch to make two other predictions. The first was that *it would be impossible to continue the war to the point where one side or the other achieved what has come to be called unconditional surrender.* The second was that *war would produce domestic perturbations acute enough in some*

countries to overthrow the political order. And both are exactly what happened in 1918.

Naval warfare was the subject of the third volume. Complete interdiction of the maritime communications of any European power would weaken it and might in the case of some reduce it to starvation and collapse. Bloch asserted that a few fast cruisers loose on the high seas could achieve that degree of interdiction in spite of battlefleets and measures like con-

the suspension of seaborne commerce would create. They would be greatest in England and least in Russia. He ended the volume by arguing that Russia had no need for a fleet in the Far East, as she had nothing to fear from Japan, and a commitment for a big navy would be unwise since she had no reserves with which to buy grain in case of a crop failure.

Economic Collapse Ahead

In the fourth volume Bloch described the domestic disorders which the future war



Figure 2.—A "Cat and Dog Meat Butcher Shop, in Paris, 1870" with black market operators, police, and distressed housekeepers fighting over the scarcity of foodstuffs

voys and, therefore, advocated commerce warfare as an effective form of naval strategy. For support he quoted an American admiral. He regarded battleships as vulnerable to torpedoes, dismissed bombardment as ineffective, and characterized landing operations as involving the maximum effort for the minimum result.

But, Bloch continued, the authorities had not considered the internal conditions that

would cause. Modern war, he thought, would create unemployment, for the mobilization of so much of the labor force would compel the closing of most industries. Therefore, the men not called up would be laid off and any factories left open would have to shut down because of inability of most European countries to import raw materials and foodstuffs (see Figure 2).

The shortage of food would then bring higher prices which would combine with the absence of earnings to force withdrawal from savings institutions. As the portfolios of these comprised mostly individual mortgages there would be many foreclosures. The next stage in the chain reaction would be a fall in the value of securities which would frighten the rich who would refuse to subscribe to war loans.

Bloch forecast that ultimately war would not only force all belligerents to issue paper money but it would collapse their economies. The higher the industrialization, the more intense the distress, and the "temptation to pillage, if not to revolution, will be great": especially in England as her "army is not large and is composed of the worst elements of the population who enlist for money." A similar fate awaited Germany, Italy, and France, none of which was self-supporting, as well as Austria, which was, but whose political organization was tenuously sustained by dynastic sentiment alone.

Russia Could Endure

Bloch admitted Russia's inferiority in education, sanitation, mining, and manufacturing; conceded everybody was in debt; and finally that war would prevent her from exchanging wheat for guns and, therefore, bring agricultural unemployment. Nevertheless, he judged that her "endurability to war" was the greatest in Europe. Russia's liabilities were offset by an abundance of men, horses, and grain and her people were accustomed to paper money.

However, Bloch frequently cautioned the west not to overestimate Russia's military potential. He did write that because her urban proletariat, the natural prey to socialistic and anarchistic ideas, was both relatively and absolutely the smallest, she would have less to fear from domestic disorders in wartime than any other European state.

If the phantom of wartime famine had always haunted the European governments, Bloch continued, now the specter of Socialist movements, which starvation would make revolutionary, had been added. Nor would the winning power escape. Its masses, finding the domestic circumstances exceptional and themselves armed at the war's end, would not demobilize without some economic or political *quid pro quo*. And Bloch argued that even without war these socialistic movements would increase. Agitators were linking the existing order to militarism, pointing out that the armies and navies were supported by direct taxes on the necessities of life like bread, salt, tobacco, and (*sic*) brandy. Therefore, the economic burden of national defense bore most heavily on the poor.

Reduction was impossible because improvements made weapons obsolete, and new ones were needed to bolster the individual's faltering courage, by giving him a weapon he knew was better than his enemy's. Bloch described the happy situation of the United States where next to nothing was spent on the Military Establishment, where the products of her growing industries were competing successfully with Europe's in the markets of the world, and where the good life attracted hordes of German immigrants.

The volume ended with a demonstration of the material losses which war would cause on all sides. Bloch conceded that in the past, war might have been profitable when armies lived off the land. This could no longer be done and because of their size armies now would have to be nourished from home. Thus the burden of war on the domestic economy would be even greater than ever; so great, in fact, that the vanquished never could pay an indemnity.

Case for Arbitration

The fifth volume began by reviewing the ethical arguments for substituting arbitration for violence in the settlement of inter-

national disputes. Then the adoption of arbitration was urged for humanitarian reasons, with copious extracts from literary and artistic descriptions of the horrors of war, only the way a battlefield smells in hot weather escaping mention. And now, Bloch added, by logical extension from his deductions about the nature of modern war, public opinion, whose influence on its outcome could well be decisive, made arbitration imperative.

This led Bloch to assert that governments were concerned with the material preparation for war alone and neglected the psychological and ideological aspects. According to him, the two ideologies which were then current in Europe were militarism and socialism. After writing a history of socialism, he concluded that it was growing daily in stature and even suggested that its political parallel would be the passage, some day in some countries, of legislative power into the hands of the working class. Meanwhile, Socialists' dogmas inspired indiscipline, and fear of war was intensified by the proletariat's comprehension of the destructive power of modern weapons. In their strategic planning the military failed to take this popular attitude into account nor did the statesmen see that the suppression of militarism would remove the danger of socialism.

The Cause of War

The Socialists, Bloch admitted, could "go to the people" more effectively than the intellectuals. The role of the latter was to show that a settlement of international differences by arbitration would be more just and durable than one obtained by war. War's fundamental cause was the unequal rate of growth of various peoples, Bloch argued, and to make this point took the case of Germany. Her agriculture currently failed to support her people and she lived at the mercy of the fluctuations of international commerce by exchanging manufactured goods for imported food. Hence she was nervous, especially as behind her eastern back Russia's population

was rapidly growing, so that by 1950 there would be three Russians to one German. Behind her western back the trend was the other way. In the 1780's there had been five Frenchmen to three Germans, but by the 1950's the ratio would be two Germans to one Frenchman. In absolute figures Bloch estimated that by 1950 the populations of Germany would be 80 million, of Russia 200 million, of the United States 200 million, of England 50 million, and of France 44 million, which was a tolerably good prediction.

Germany, therefore, had to be ready to conquer more land should a favorable opportunity present itself. But even a successful war, Bloch insisted, would not change the situation. In the first place, there could be no indemnity, and secondly, experience showed that it was impossible to Germanize conquered areas containing Poles or Russians. And Germany's own people would rather emigrate to the United States than be resettled forcibly in those areas.

Finally, the favorable opportunity would not present itself for two reasons. The first was that if, as had recently been explained to the *Reichstag*, national enthusiasm was an essential ingredient to a declaration of war, how could an alliance enthusiasm for a coalition war be created where there was neither unity of command, of military objectives, nor of political objects among the allies? The second was that neither France nor Russia would start a war, for the resulting debits would outweigh any credits.

If Bloch's notions about the favorable opportunity for war were wrong, he was far from being alone in holding them. But his prediction that none of the objects which Germany sought could be permanently obtained by force has proved right, at least so far.

Militarism No Solution

In introducing the last volume, Bloch gives his reason for writing what amounts to an encyclopedia. It is that the military

had failed to consider the political and economic sequelae which would now follow the disease of war.

Some farsighted citizens of Warsaw, realizing that a war by Germany and Austria against Russia would be fought in Poland, had organized a joint committee to plan ways of alleviating the civilian distress which that war would bring. After discovering as one of its members that the probability of famine had not occurred to the military, Bloch began writing articles to explain the military aspects of war to the civilians and its economic and social consequences to the soldiers. A Russian general, who could both read Polish and act as censor, finally was found and publication began in Warsaw in 1892 of the essays which were later incorporated into the treatise now being summarized.

The hypothesis of this final volume was the incongruity of the system of militarism which then flourished in Europe. Militarism rested in large part, save in England, on the false proposition that an army was a requisite to government in the preservation of its existence against its internal enemies, and whose necessity consequently increased directly with the diffusion of socialism and anarchism.

By showing that these dangerous doctrines were spreading as armies grew, Bloch challenged the notion that military service had a beneficial and tranquilizing effect on the masses. He argued that between two dangers one naturally chooses the danger which appears to be the lesser. At the moment this seemed big armies rather than war. But the ruling classes failed to realize that in so choosing they might be encompassing their own destruction, for they had unwittingly created a vicious circle. Each increase in the size of the armies made more probable a war which would be fought to determine the fate of the whole nation and which would probably obliterate historically differentiated classes.

Halt Imperialism Expansion

Other causes of militarism included the professional soldier and industry, for firms like Krupp saw armaments as a source of profits. Finally, there was the fact that by its very nature militarism compelled constant competition for superiority. Bloch advanced the hope that this competition might contain the germ of its own destruction. His reason, which is not without support today, is contained in the observation, which he quoted, of the Russian chemist Mendeleev—whose discovery of the Periodic Table of the elements is basic to atomic fission—that in "the perfection of arms and the study of explosives: there is the best and surest means of reaching universal peace."

Bloch ended by again urging arbitration to replace war and, to show that this means was both practicable and lasting, he reviewed the issues then threatening the peace of Europe. Among them were the Dardanelles whose control was coveted by Russia. But here Bloch reminded the czar's good subjects of Lamennais' warning that the danger to great empires was apoplexy at the center and anemia at the extremities. He, therefore, pleaded that the brakes be applied to Imperial expansion.

Bloch saw no immediate threat to Europe's peace from religious or dynastic questions and regarded as unlikely a war over colonial rivalry, because no power would sacrifice thousands of men to line the pockets of a few manufacturers and traders. He concluded that all existing issues could be resolved by an international court. Its judgments would be enforced by the power of public opinion, although the chauvinistic press of a nation against which an award had been made might have to be suppressed. The establishment of this court would be followed by disarmament and once that has been accomplished, no government could ever get a legislature to vote the taxes which it would need to rearm.

Many Accurate Predictions

The sheer quantity of Bloch's writing about the war which was soon to come is such that, like columnists who make weekly predictions over a period of years, the laws of chance ensure that events will prove at least an occasional forecast to have been right.² And like another columnist, of whose work it used to be said that one never knew from day to day whether it was written from, for, or at the White House, some parts of *The Future War* may have been prognostications made in the czar's behalf and others auguries of disaster preached at him. On the other hand, Bloch's forecasts about the course and consequences of World War I were, if not heretical when uttered, at least heterodox, yet they proved to be far from inaccurate.

One of Bloch's predictions was quite wrong. This was that a few fast cruisers, loose on the high seas, could effectively interdict a hostile power's maritime commerce. The efficacy of commerce raiding as a form of naval warfare had long been proclaimed by the French. Its futility was demonstrated in 1890 in Mahan's famous study on the influence of seapower on history, a study not listed in the bibliography. But in Bloch's defense it should be remembered that by utilizing the submarine to destroy enemy and neutral shipping in 1917, Germany adopted a naval strategy which nearly brought England to her knees.

Secondly, Bloch considered a navy inconsequential to the defense of Russia. Her probable war would be with Germany or the Triple Alliance, to the winning of which a navy could make no contribution. It follows that if those in authority deemed a navy necessary, if only for prestige, one

composed of cheap cruisers was a lesser evil than a fleet of expensive dreadnoughts.

Called the Turn of War

One conclusion, and a fundamental one, in which Bloch was right was that in the tactical conduct of the next war the defense would be superior to the offense. Since this superiority was derived from the firepower of the new weapons, it would continue until the appearance of newer inventions which would once more permit movement. This, one may now think, should then have been obvious to the conscientious and thoughtful professional soldier. Yet Plan XVII of the French General Staff, Germany's Von Schlieffen plan and whatever may have been the plan under which two Russian armies marched to their destruction in East Prussia in 1914, all were based on the opposite assumption.

Bloch overstated his case by assigning greater effectiveness to the rifle than the cannon. The land battles in the first half of the 20th century were to be won by a team composed of infantry and artillery, with the latter becoming increasingly the dominant partner, especially after 1939 when it was frequently airborne. They would not be won, as the professional soldier especially in France visualized, by morale, willpower, and *furia francese* alone. (Figure 3.)

Although Bloch nowhere states explicitly that strategy is conditioned by tactics, the organization of his material indicates that he accepted this premise as axiomatic, believing that in the strategic conduct of the future war the defense would dominate the offense. As long as this relation lasted, and the dominance of defense over offense was made relatively greater by the difficulties of supplying and moving large armies, there would be an end to the classic and infallible maneuver of surprise and envelopment in any of its manifold forms. A stalemate must inevitably ensue, and given a stalemate, a war could be won only by attrition.

² Hoffman Nickerson, *The Armed Horde*, New York, 1940, pp 231-234, and Richard D. Challener, *The French Theory of the Nation in Arms 1868/1939*, New York, 1956, p 113. However, Bloch is more favorably regarded as a prophet by Major General J. F. C. Fuller in *The Decisive Battles of the Western World*, London, 1956, Vol. 3, pp 182-184.

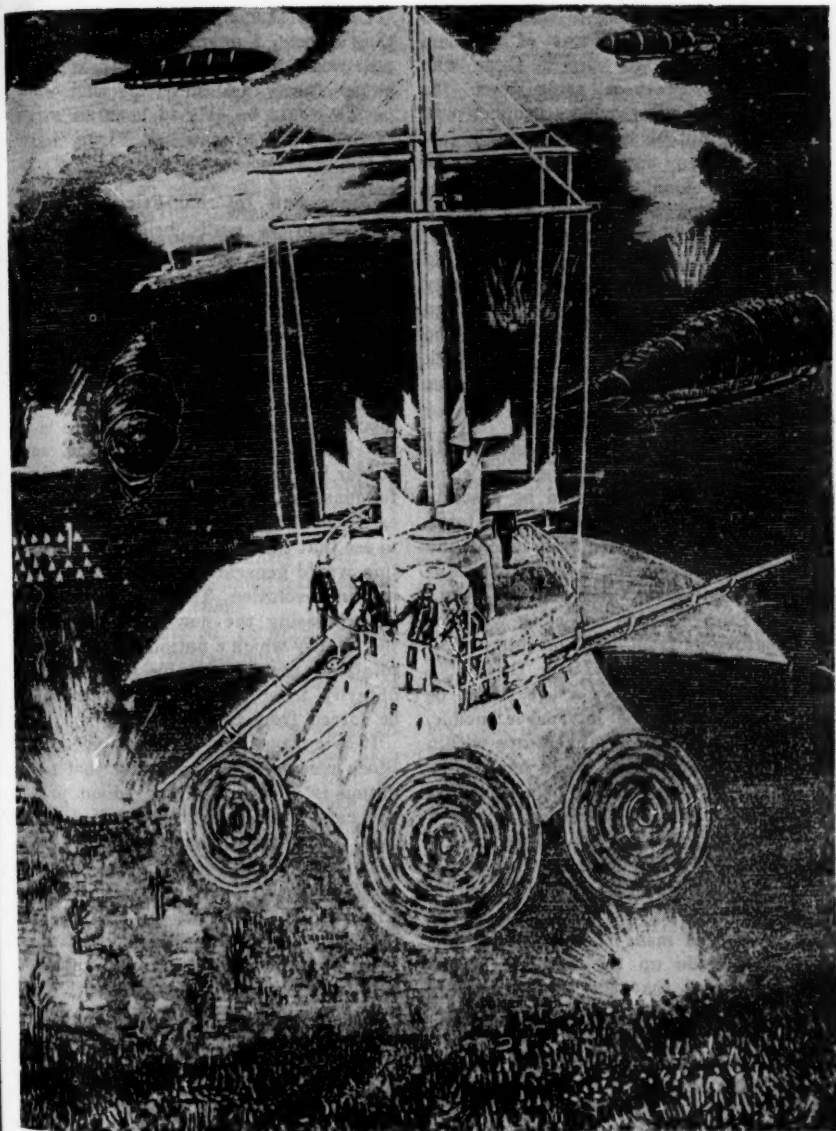


Figure 3.—This conception of the destruction of exposed troops by a highly imaginative flying machine armed with artillery appeared in Bloch's first volume in 1898

Yet few were willing to think through the problems which a war of attrition would bring. In the van of those who brushed the prospect aside were the professional soldiers whose prophet was Clausewitz. But he had proclaimed a law capable of many interpretations and the currently fashionable one called for absolute war which the prophet had defined as "an act of violence pushed to its utmost bounds." Therefore, just by pushing more violently than the enemy, especially if clockwork mobilization could catch him off balance, the soldiers argued that the next war could be won quickly. To think in other terms, they said, was superfluous.

Wars Would Be Total

Bloch challenged this proposition. He agreed that the war which was to come with the 20th century would be absolute but he insisted that it also would be total. This totality would result as much, and perhaps more, from the metamorphosis of the economic, social, and political conditions in Europe which had come with the 19th century as from developments in military technology and strategic theory.

Consequently, however great might be the differences in the internal economic, social, and political arrangements within the nations, great wars would have to be fought for national ends. The total effort of the nation would be needed to win a total war. And if a war could be won only by a strategy of attrition, then by simple extension the objects of that attrition would be not alone the armed forces, but also the sum of men, money, and mentality which made up the nation's power. Bloch predicted that the side whose armies and peoples had the greater powers of resistance and whose resources were the better husbanded would be the nominal winner, which is exactly what happened in World War I.

To make one's attrition effective, as well as to counter the enemy's, Bloch saw that national integration was the indispensable

factor which dominated the purely military aspects. A unanimity of national purpose would have to be created which would be so strong and unifying that all the people would be able to bear as sore afflictions as ever man had borne, and for a longer time.

Saw Internal Frictions

Whether he really believed it or not, Bloch did write that Russia had the greatest capacity of any European power to withstand the disintegrating forces of modern war. But after surveying the rest of the continent in a state of armed peace, he wondered if the other countries had the needed unanimity. In each he saw much internal friction and referred to Victor Hugo's observation that the cannon fodder had begun to think. It was the professional soldiers and the political leaders, Bloch frequently wrote, who refused to see that the forces which a war of attrition would generate could well cause it to end in revolution. This was another way of expressing the now obvious fact that the totality which a nation needs to survive total war is more durable if it comes voluntarily from the bottom up than if it be forced from the top down.

It is curious that the greatest support Bloch received for suggesting that a total nation is an essential ingredient in total war came from the extreme left. It, therefore, tended to be waspish, and more emotional than reasoned, but remarkably well-written. An instance is a book called *The Army Against the Nation*—the title aptly expresses its theme—which appeared in France in 1898 and ran to 22 editions by 1900. In addition to any pecuniary return it may have brought him, Urbain Gohier, the author, also was rewarded with the martyrdom of a trial (for criminal defamation), the goal of all militant Socialists. He was acquitted by a jury.

Also in 1898 a well-known German Socialist, August Bebel, published a short book entitled, *Not a Professional Army*

but a *People's Army*. It advocated, for reasons of equality, national defense by a sedentary militia modeled on the Swiss system and inherently incapable of waging aggressive war. A detailed and lucid exposition of this program of the Socialists for replacing the permanent army, which they regarded as constituting a separate and hostile class like bankers and steelmasters, with a militia is contained in *The Army of a Democracy*. It was written by a Frenchman named Gaston Moch in 1899.

Case for "People's War"

In 1910, when the war clouds were thickening, the leading French Socialist deputy, Jean Jaurès, entered the fray with a widely publicized book called *The New Army*. He placed less emphasis on tactical developments and economic factors than had Bloch and more on need for equality and justice in the distribution of the obligation to defend one's country. Both the Russian and the Frenchman reached the same ultimate conclusions.

Jaurès distinguished between ancient wars, fought by professional armies for objects which did not concern the rest of the nation, and modern wars which would be fought by citizens for objects whose attainment must be logically regarded as a national necessity. He argued that an army, which existed for its own sake and not for the nation, was an intolerable institution in a democracy. He accused the French professional soldiers of misreading Clausewitz and, therefore, believing with a blind faith that an attack by a

long-term, standing army would be invincible.

Jaurès was right, for the general staff's plan to defend France by attacking in Lorraine, together with their failure to mobilize and immediately to use all reserves, resulted in the loss of vital territory in the northwest provinces of Artois, Flanders, and Picardy in 1914.

On 30 July of that fatal year the czar, who had suggested a peace conference 16 years before, ordered the general mobilization of Russia's armies. The next day Jaurès was assassinated by a fanatical Nationalist. On 1 August mobilization of the armies of France and Germany was ordered and World War I was on. Four years later, with his wife and children, the same czar who had failed to heed Bloch's warnings was shot by a firing squad in the course of a revolution which had been predicted by Bloch.

Bloch saw, and saw whole, the fabric of the modern industrial state and the implications of its involvement in a modern war. By experience we in the west have come to appreciate the truth of his insight into the need for national unity in this century of the common man, of anxiety, and of total war. Let us hope that after the Communists have finished with Stalin completely, they too may resurrect Bloch and accord *The Future War in Its Technical, Economic and Political Relations* some better accolade than the Soviet Encyclopedia gave it in 1950. There it was described as having been "written in the spirit of bourgeois pacifism."

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OPERATIONS IN THE TAIGA

Lieutenant Colonel Raymond L. V. Pearson, *Artillery*
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EVER since wars have been waged, commanders at all echelons have attempted to utilize natural terrain features to their own advantage. The attacker sought terrain which would facilitate movement and enable him to maneuver and close with the defender. He usually avoided natural or artificial obstacles such as forests, swamps, rivers, and fortifications in his effort to maneuver the defender out of position. The defender, on the other hand, utilized natural lines of resistance and obstacles as much as possible to hamper the attacker.

As long as armies were relatively small, it was usually much more expedient for an army to pass around a defended feature or obstacle to reach its objective than to fight through the obstacle. The growth of armies to forces numbering millions of men has all but eliminated the simple expedient of sweeping around an obstacle on the ground. Maneuver to avoid obstacles is now often restricted, simply because of a lack of room on the battlefield. As a compensation, however, recent wars have shown that modern armies are capable of fighting over any terrain and can overcome almost any type of natural obstacle during the course of combat operations.

Whether future wars are nuclear or nonnuclear; big or little; or are fought in forest, jungle, mountain, plain, or urban area there will be a requirement for ground forces, properly trained and equipped, to

seize specific ground objectives to ensure the accomplishment of the ultimate objective. Although the choice of where to conduct military operations lies initially with the attacker, the manner in which the defender utilizes the terrain for defensive purposes exerts a considerable influence.

A study of past wars and operations can contribute materially to the future employment of ground forces. In this day of worldwide unrest and related deployment of United States military forces, it seems prudent to study past ground operations in areas of possible future employment in order to benefit from experience in these areas. To this end the following brief account of operations in the forests of northern Europe is presented.

THE TAIGA

The land surface of the earth can be divided into six principal patterns based on climate and the similarity of landscape. These patterns are: desert, jungle, forest, plain (steppe), mountain, and frozen areas. Each of these patterns exert their own particular influence on military operations.

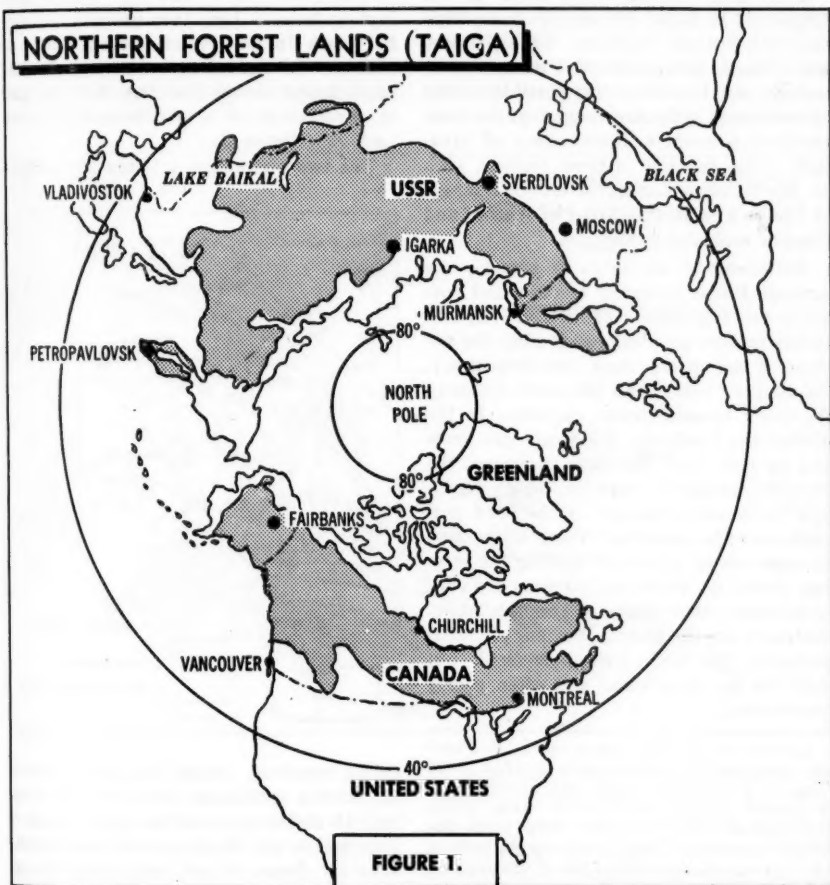
Northern forests, the type in which the Finnish-Russian wars were fought, extend across the northern latitudes of Europe, Asia, and North America. These forests are often called "taiga" by the Russians. They extend south from the

Whether future wars are nuclear or nonnuclear; big or little; or fought in the forest, jungle, mountain, or plain area, our ground forces must be equipped and trained to utilize climatic and terrain conditions

tundra area in a belt some 600 to 1,200 miles wide and cover large portions of Alaska, Canada, Sweden, Norway, Finland, and the USSR. This belt is approximately 4,000 miles long across North

The density of the northern forests varies greatly, but even in their most dense areas they do not form as thick a cover as do tropical jungles.

The terrain in the taiga areas is gen-



America and 5,000 miles across Europe and Asia (see Figure 1). Approximately 58 percent of Canada and 40 percent of the USSR are covered by it. These forests are primarily coniferous, but some broad-leaved species of trees also are present.

erally flat, with differences in elevation being relatively slight. Lakes and streams are numerous and swamps and marshes cover approximately six to 10 percent of the total area, and may cover as much as 50 percent in some regions. These swamps

and marshes are the most variable terrain features in the taiga areas because they dry with great rapidity and become impassable very rapidly after precipitation or during the thaw-out period.

Invariably, the inhabited areas of the taiga will be found in comparatively high and well-drained locations. Cities, towns, and villages are scarce and because they usually are located along possible routes of movement they are important as communication centers. Some areas of strategic value do exist in these regions, such as the Moscow-Leningrad-Gorki triangle of Russia and certain areas of Alaska and Canada essential to defense.

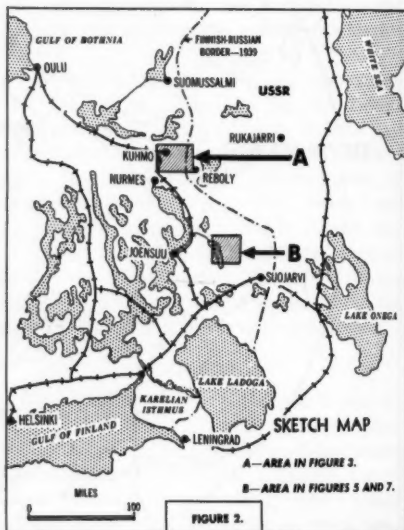
Movement in the taiga is severely restricted. Roads generally are few and normally are constructed of dirt, gravel, and (occasionally) cobblestone. During the periods of the spring thaw (breakup time), the summer rains, and the early freezeup the roads become almost unusable. In the winter the roadbeds are firm, but snow and ice may limit their use. However, the climatic conditions (extreme cold) facilitate the rapid extension of the road network over the snow and frozen waterways by experienced personnel. During the summer period the lakes and streams are used to augment other means of transportation. Railroads are the principal means of transportation for large-scale movement, but they are few in number and often poorly constructed.

Lieutenant Colonel Raymond L. V. Pearson received his commission in 1941 from Cornell University, and was assigned as Assistant PMST at Cornell until 1944. His service also includes duty with the 395th Armored Field Artillery Battalion, 16th Armored Division; 11th Medium Port, Military Government, Korea, 1946-48; instructor, Kentucky National Guard, 1949-51; and as executive officer and battalion commander, 981st Field Artillery Battalion, 40th Infantry Division, Korea, 1952-53. Following his graduation from the U. S. Army Command and General Staff College in 1954, he was assigned to the faculty of the College.

THE FINNISH-RUSSIAN WARS

Finland and Russia fought two wars in the taiga regions during the period 1939 to 1944. The first was a short winter war lasting from 30 November 1939 to 13 March 1940. The second war was longer, lasting from 26 June 1941 until 19 September 1944. In both wars the attackers as well as the defenders concentrated their main forces on the Karelian Isthmus and in the area north and northeast of Lake Ladoga (Figure 2).

The two operations selected for presen-



tation occurred during the two extremes of climatic conditions found in this area. In both instances offensive operations were launched by the Russians with numerically superior forces using mechanized equipment which necessitated an advance along the available roads. Both times the Russian forces were contained by an inferior (in number and mechanized equipment) Finnish force, and were annihilated or faced annihilation at the cessation of hostilities.

WINTER OPERATIONS

Early in 1940 the Russians launched an offensive with the objective of initially seizing the communication center of Kuhmo, and eventually those of Kajaani and Nurmes (Figure 3).

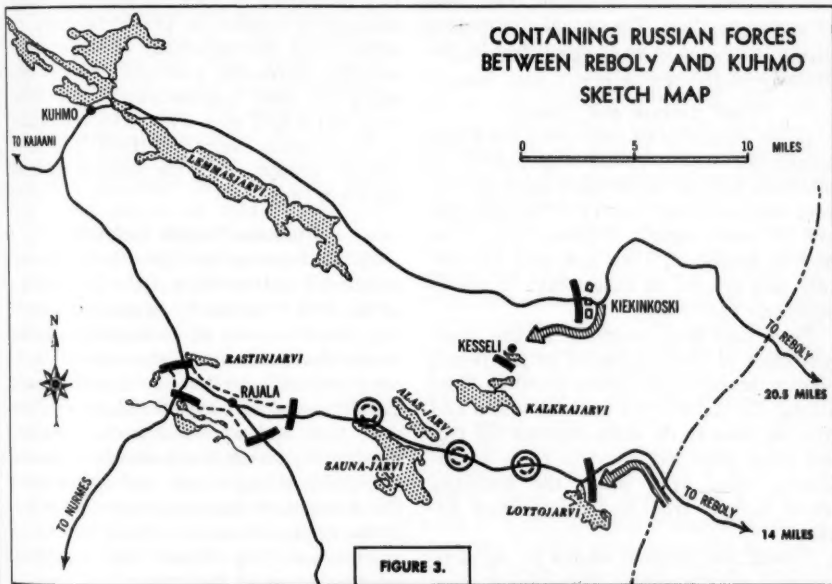
They advanced in two columns along the two roads from Rebohy to Kuhmo. The force on the northern road was stopped a short distance west of Kiekinkoski early

strong firepower in its heavy mortar regiment and tanks.

The Finnish force opposing this column consisted of approximately five battalions (2,000 men), equipped primarily with automatic weapons and light, high trajectory artillery.

The country through which the Russians were attempting to advance was typical undulating taiga forests frequently broken

CONTAINING RUSSIAN FORCES
BETWEEN REBOHY AND KUHMO
SKETCH MAP



in the operation. Except for units which operated from this location to relieve the Russian units to the south, this column played no further part in the action and, therefore, will not be discussed.

The southern column numbered about 16,000 troops and consisted of the Russian 54th Division, plus supporting troops, less the division's artillery regiment. It was equipped with numerous trucks and heavy horse-drawn vehicles. Although lacking its artillery regiment, the division possessed

by frozen lakes and streams. The area was virtually uninhabited and there was little open terrain except for small clearings surrounding the few existing Finnish cabins. Soft, powdery snow covered the ground to an average depth of two to three feet, although drifts of more than six feet were common.

Because of their large amount of mechanized equipment and lack of winter cross-country equipment the Russian force was roadbound. Few patrols were employed to

protect the flanks of the long (approximately 15 miles) column of tanks, armored cars, trucks, and field kitchens (both motorized and horse-drawn).

The Finnish plan of operation primarily was based on the high cross-country mobility of their troops. The over-all plan provided for establishing strong points in the defile between Lake Rastin (Rastinjarvi) and Lake Lapin (Lapinjarvi) to halt the enemy forces and then to immobilize and contain them by cutting their lines of communication. The actual destruction of the force was to be accomplished by the severe cold and starvation.

Used Terrain and Climate

In the execution of their plan the Finns established strong points and patrols at intervals around the Russian force to prevent any movement into or out of the area and to sever contact between it and its base of operation. They also used the terrain and climate in other ways to facilitate their operations:

First, they took advantage of the excellent fields of vision afforded by the frozen lakes to protect their patrol positions from attack. To improve the fields of vision and fire, the trees in the defile between the frozen lakes were cut down to form a continuous open area which the Russians would have to cross to continue their advance.

Second, they utilized winter ice roads to increase their mobility. These roads were constructed rapidly by cutting down the necessary trees, flooding the area with water from nearby lakes, and then allowing time for it to freeze.

Third, they took maximum advantage of the cover and concealment offered by both the forests and the snow to screen their movement and operations. In the open areas a series of snow fences were constructed to cause the snow to drift and conceal the movement of small patrols deployed around the Russian force.

Fourth, barbed wire was stretched be-

tween the stumps about a foot off the ground and covered by snow to make a very effective obstacle.

Upon reaching the Finnish strong points and finding the Kuhmo road blocked, the 54th Division attempted to bypass the strong points by changing its direction of advance to the southwest along the road to Nurmes. This attempt was futile because the Finns had disposed two battalions just west of Lake Latva (Latvajarvi) in anticipation of such an effort. Finding themselves unable to break through on either road, the main body of the division occupied defensive positions in an area along the road approximately five miles long and a half mile wide. The remainder of the division contracted itself into three smaller groups along the road in rear of the main body.

Russians Quickly Isolated

By 29 January the Finnish forces had completely isolated each of the four groups of the 54th Division. By aggressive patrolling, the Finns cut all communications between the groups and then closed in to complete the encirclement of each group. The Russians were cut off completely from their base and were unable to move out through the forest in any direction because of Finnish strong points and patrol activity. Attempts to send out patrols from any of the groups resulted in their capture or annihilation. The Finns thus completed the first phase of their plan.

Now the second phase began. From 29 January until 13 March the Russian positions remained unchanged. The Finns never attacked the encircled groups in force. While waiting for hunger and cold to cause submission of the isolated forces, the Finns conducted small-scale operations to harass them. Small detachments of Finnish artillery were moved at will along the winter ice roads and used to harass the encircled groups. These harassing operations succeeded in further splitting the main body into three groups. By avoiding

major engagement and keeping their patrols small, the Finns never allowed the Russians an opportunity to inflict heavy damage on their forces. Finnish patrols and units were kept small. Finnish installations and positions were widely dispersed to minimize the effects of mortar and tank fire from the Russian positions.

Stole Russian Supplies

The Russians, having learned some lessons from earlier operations, organized a system for supplying food and other essentials by air in order to keep starvation from taking its toll. The Finns lacked fighter aircraft but used ground weapons so effectively against the aerial convoys that it became necessary for the Russians to conduct their resupply operations at night. The Russians indicated their positions to the planes by using flares. The Finns duplicated these flare signals and soon were obtaining the bulk of their food from Russian sources. Food that did reach the Russians was insufficient and they were forced to eat their draft animals.

The Russians made a number of attempts to get through to the 54th Division, but none were successful. On 31 January and 1 February Russian ski patrols, from the force at Kiekinkoski attempted to establish contact with the 54th Division, but were annihilated by Finnish patrols which intercepted them on the northern and eastern sides of the division position.

Later the Siberian Ski Brigade, consisting of the 9th, 30th, and 34th Ski Battalions, made a second attempt from the Kiekinkoski area. This was a force trained and equipped to fight in forests under winter conditions. It consisted of approximately 2,000 men, well equipped with automatic weapons, heavy and light machineguns, and small-caliber artillery. On 16 February the brigade moved around the south flank of the northern Finnish forces by using one of the Finnish winter roads to reach the frozen Kiekin River and then followed the river southwest to-

ward Kesseli. The Finns discovered the brigade's movement and sent a force of approximately 300 men to intercept it in the vicinity of Kesseli.

By the 17th the Finnish force was deployed in small patrol groups around Lake Kesseli just south of Kesseli. The Siberian Ski Brigade advanced across the open spaces of the lake, but before it could get across or retreat into the forests, the Finnish patrols annihilated it. No further attempts were made to relieve the 54th Division from the vicinity of Kiekinkoski.

The final attempt to reach the surrounded 54th Division was made toward the end of February. A full Russian division with its artillery regiment was moved up along the same road used by the 54th Division for the purpose of reestablishing communications along the road.

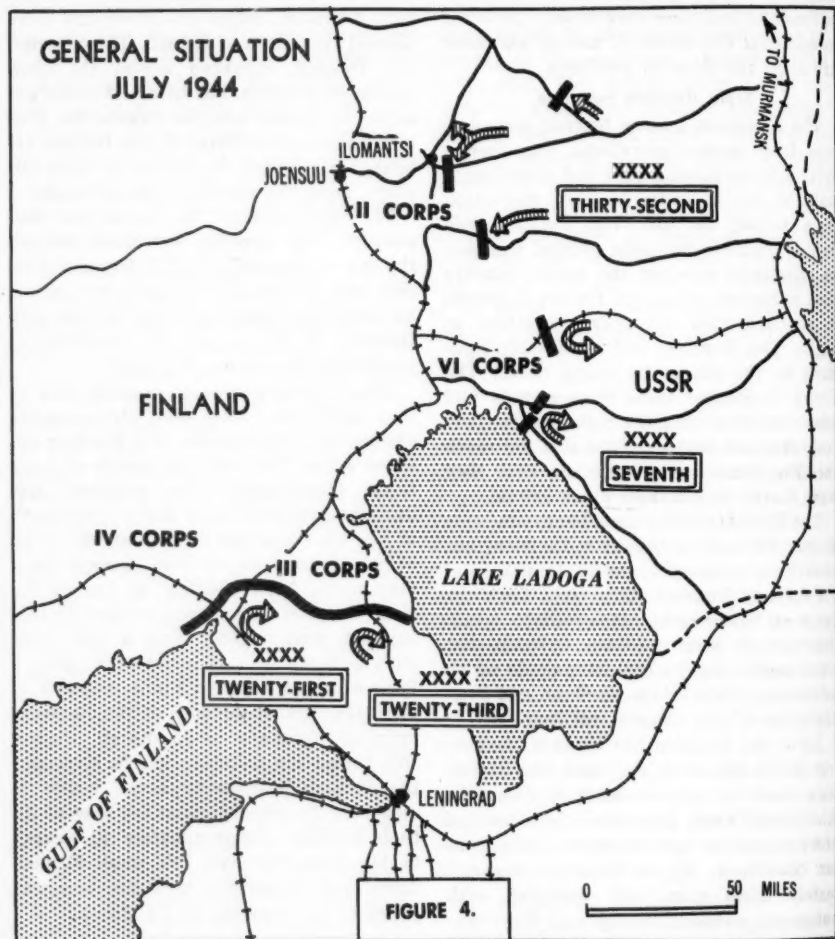
The Finns concentrated as many men as they could spare from their strong points around the 54th Division in a blocking position across the road just north of Lake Loyto (Loytojarvi). The position's left flank was anchored on a slight ridge north of the road and extended down the slope across the road to the lake. Except for a very small farm clearing on top of the ridge the position area was wooded. In this position, just slightly over a mile wide with a depth of a quarter of a mile, a force of a few hundred Finns was able to block the further advance of the Russians from 29 February to 13 March. During this period the Russians sought to reduce the Finnish position by aerial bombardment and by concentrating the fires of all their artillery (approximately 40 pieces) on the area. However, this small Finnish force held its position until the war was ended by an armistice on 13 March.

SUMMER OPERATIONS

In June 1944 the Russians again launched a general offensive on both the north and south sides of Lake Ladoga. The Finnish forces withdrew, fighting a delaying action, against the numerically

superior enemy forces until mid-July (Figure 4), when they succeeded in halting the advance of the Russians except along the left flank of the Finnish II Corps east of

fantry Brigade (four infantry and two field artillery battalions). The Finnish High Command directed that a single command (called Group "R") under General Raap-



Ilomantsi. Here, two Russian divisions, the 176th and 289th, continued to push forward toward their objective (the railroad at Joensuu, approximately 40 miles west of Ilomantsi) opposed by the Finnish 21st In-

fantry Brigade (four infantry and two field artillery battalions). This force consisted of the 14th Infantry Division, elements of a cavalry brigade, and the 21st Brigade; a total of 11 infantry battalions, five artillery bat-

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talions, and one combat engineer battalion.

The terrain in the area of operations was typical of the taiga region: forests, swamps, and numerous lakes covered most of the area. The roadnet was extremely limited (see Figure 5). The only highway from Ilomantsi to Joensuu traversed several defiles and dense forests which pro-

streams. Only in limited areas could vehicles (either wheeled or tracked) be moved more than a few hundred yards from the roads without time-consuming road construction.

On 25 July the Russian forces were advancing in four columns on a frontage of about 15 miles (Figure 5). The 176th Di-

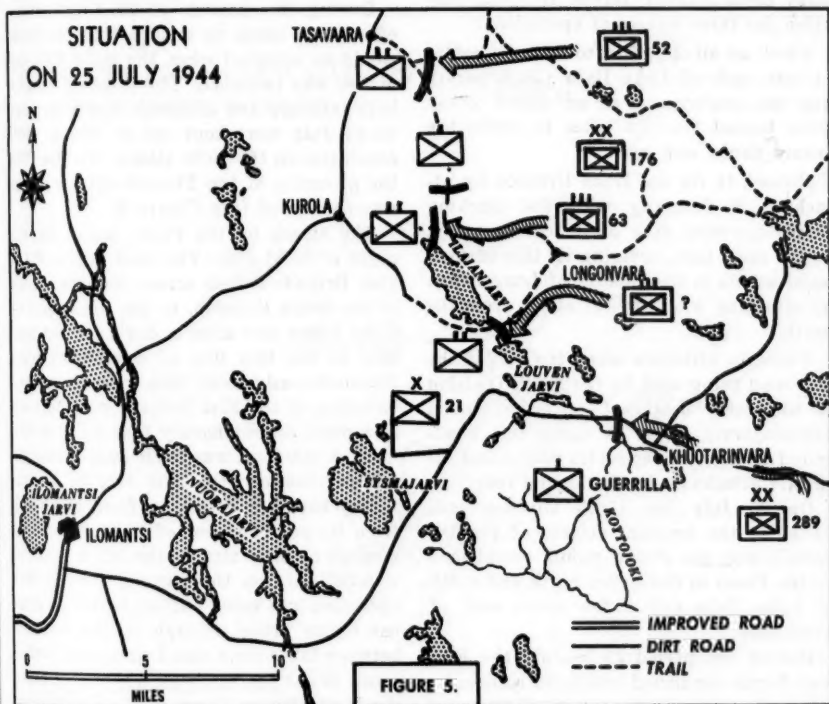


FIGURE 5.

vided excellent blocking positions. Other highways to Joensuu were approximately 25 miles to the north and 30 miles to the south. Only one extremely poor dirt road reached Ilomantsi from the east. The remainder of the area contained a few trails which in some instances were wide enough for wheeled or tracked vehicles. Cross-country trafficability was very poor because of the extensive swamp areas, lakes, and

vision on the north was advancing across country and along existing trails in three regimental columns. An engineer battalion assisted the advance of each regiment by building dirt and corduroy roads; however, these roads did not permit the movement of tanks which were soon forced to return to their base. The roads *did* permit horse-drawn artillery to follow the regiments to furnish artillery support. The 289th Divi-

sion, on the south, was advancing in a single column along the one poor road leading into Ilomantsi from the east.

Three-Phase Defense

While waiting for the reinforcements scheduled to arrive on 27 July, General Raappana prepared plans to stop and destroy these Russian forces. His plan provided for three phases of operations:

First, an all-out effort to hold the defiles at both ends of Lake Ilaja (Ilajanjarvi) and the employment of an attack group from behind the two lakes to strike the enemy flanks and rear.

Second, to fix the 176th Division by attacking it frontally with the blocking forces opposing each of its columns and, at the same time, severing its line of communications in the vicinity of Longonvara by attacking with two battalions from the north.

Third, to withdraw along the axis of the dirt road being used by the 289th Division to the defile southeast of Lake Sysma (Sysmajarvi) so as to cause this road-bound division to expose its flanks and facilitate attacks on its flanks and rear.

On 25 July the 176th Division was halted by the frequent attacks of Finnish patrols and the strong points established by the Finns in the defiles north and south of Lake Ilaja and a few miles east of Tasavaara.

During the period 25-29 July the Finnish forces conducted extensive reconnaissance of routes to the enemy flanks and rear, continued its patrol activities on the flanks of the Russian columns, continued to withdraw ahead of the 289th Division, and prepared blocking positions on the high ground south of the swamp between Lake Sysma and the small lake to the east.

These positions utilized the open areas of the swamp to achieve excellent fields of fire. The natural obstacle of the swamp was exploited by building dams in the nearby creeks to cause additional flooding.

The Russian attacks on the blocking position on 27 and 28 July were repelled and the division advance was stopped. The flanks of the division were kept under close surveillance by one Finnish battalion on the north and a guerrilla company on the south.

Setting Up Victim

During this period (25-29 July) every effort was made to ensure that surprise would be achieved when the main Finnish attack was launched. The reinforcements, both infantry and artillery, which arrived on 27 July were kept out of action until committed in the main attack. By the 29th the grouping of the Finnish attack forces was completed (see Figure 6).

The attack by the Finns began on the night of 30-31 July. The main force of the 21st Brigade moved across country, south of the 289th Division, to the south end of Lake Louve and after a day's combat was able to cut this line of communications. Simultaneously with this operation, one battalion of the 21st Brigade cut the road at a point approximately four miles to the west. A third cut was made approximately midway between the first two by an infantry battalion attacking from the north from its position west of Lake Louve. As a result of these attacks the 289th Division was divided into three groups. While this operation was going on, two battalion combat teams broke through on the isthmus between lakes Ilaja and Louve, and turned south to cut the roadway where it crossed the Koyto River (Koytojoki). *All of these Finnish operations were conducted across country.*

North of Lake Ilaja the Finnish northern group reached the communication routes of the 176th Division and captured the high ground and trail junction west of Longonvara. This, together with an attack by the Finnish forces which had been blocking the advance of the 176th Division, resulted in a general withdrawal by this division.

Divide and Conquer

The two Russian divisions, finding themselves cut off from their lines of communication, attempted an attack toward the east to reestablish these communication lines. However, these efforts did not succeed, and the Finns were able to keep both lines of communications closed. The Fin-

doing, it was forced to abandon all of its heavy equipment and suffered heavy casualties.

The Russian 32d Army in its attempt to extricate the trapped divisions employed three marine brigades and one armored brigade. These brigades arrived at Khuotarinvара on 4 August and immediately

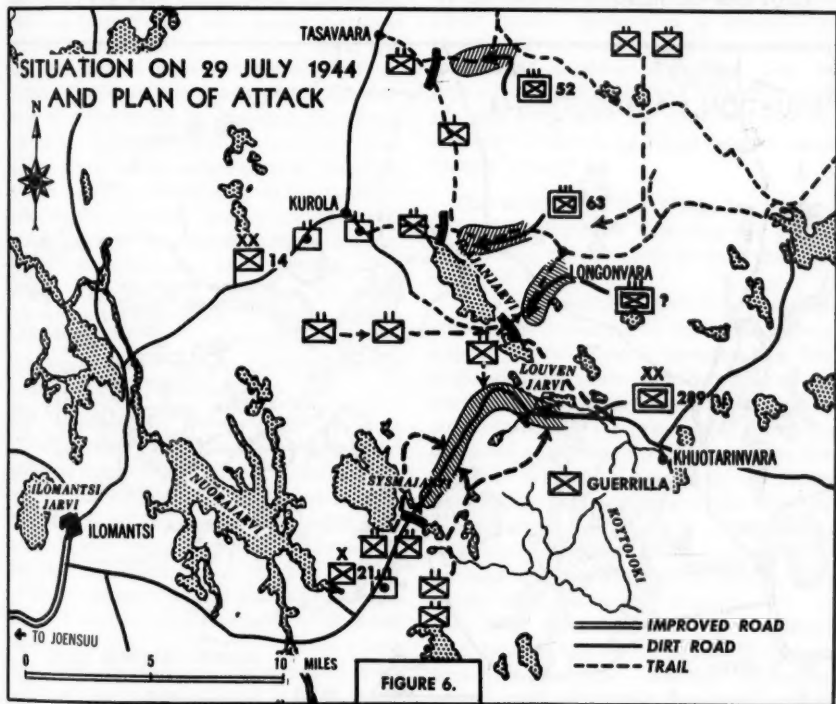


FIGURE 6.

nish forces continued their attacks and by 2 August the encirclement of Russian forces was completed (Figure 7).

During the next three days extensive attacks were conducted against each of the Russian pockets. By 5 August the 289th Division was destroyed. Part of the 176th Division managed to break out of the encirclement and escaped through the woods and swamps to the east; however, in so

attacked toward the surrounded divisions, but the Finns had already taken steps to block their advance to the west. Three Finnish battalions were diverted from their efforts against the 176th Division and deployed to meet the attack of the marine forces which were attempting to relieve the 176th Division.

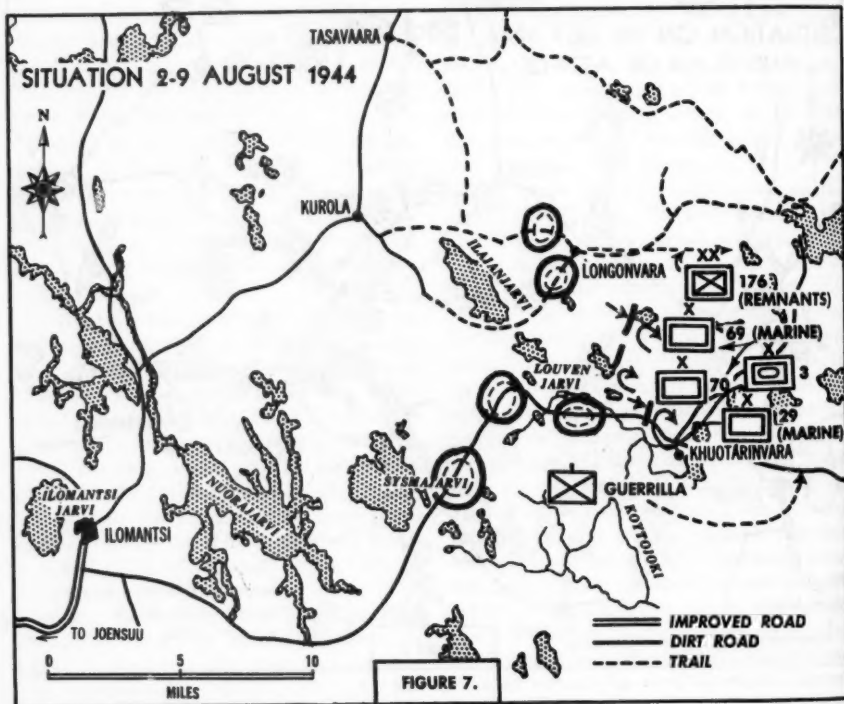
In addition, the Finnish guerrilla company attacked the motor columns of these

brigades east of Khuotarinvaa and caused considerable confusion and delay. By 6 August all of the Russian pockets were either wiped out by the Finns or evacuated by the Russians. The diversion of three Finnish battalions against the marine brigades facilitated the escape of some of the forces of the 176th Division.

The Finns continued to repulse the at-

from the impact of other areas of the world. The Finns adapted the organization, equipment, training, and tactics of their forces to meet the climatic and terrain conditions found in this area.

Units were organized and equipped to achieve a high degree of cross-country mobility. Trucks were concentrated at division level and horses were provided for



tacks of the marine brigades and by 9 August had stabilized the front in this sector.

HOW TO FIGHT IN TAIGA

The taiga, with its extremes of climate, meager roadnet, dense forest, and numerous obstacles, has an impact on the conduct of military operations quite different

use at lower echelons. The equipment of Finnish infantry units was such that it could accompany the units wherever they were required to operate.

To exploit the restricted fields of fire in the forest (50-150 yards), automatic weapons (submachineguns and light machineguns, .30 caliber) and high-trajectory weapons (80 and 120-mm mortars) were

the principal infantry weapons. Artillery was either tractor-drawn or horse-drawn.

Few tanks were included in their organization. Although this was due principally to economic reasons, the extensive use of tanks was not considered feasible except in support of operations along the roads.

Finnish tactics permitted them to retain the initiative and, at the same time, avoid decisive engagement with major elements of the Russian forces. Infantry, tank, and artillery teams were concentrated at selected points on the roads where the terrain was favorable for blocking the enemy advance. Although Finnish artillery possessed considerable cross-country mobility, it was usually placed close to the roads in position to support these blocking forces and to provide long-range support for maneuvering elements and patrols. The highly maneuverable infantry elements, trained and equipped to utilize the terrain to best advantage, were deployed to strike the enemy flanks and rear and eventually to surround and destroy them.

Russians Not Prepared

The Russians, on the other hand, did little to adapt their organization, equipment, training, and tactics to the climate and terrain of the taiga. Their units generally were organized and equipped to conduct operations in a manner similar to those employed on the plains of Europe. Their divisions were equipped with many tanks, armored cars, and trucks which kept them roadbound. Their troops were not conditioned and trained to fight under climatic and terrain conditions found in this area. Even the Siberian Ski Brigade, which included Russia's best trained forest fighters, was no match for the Finnish units it encountered.

Russian tactics were limited for the most part to breakthrough attacks along the roads. Their attempts to maneuver across country were unsuccessful. They were dependent upon mass artillery and mortar fires which were ineffective against

the small, maneuverable Finnish units used against them. They failed to screen and secure their forces properly, enabling the Finns to surprise, surround, and defeat them.

Why Did Finns Succeed?

*The principles of war are fundamental truths governing the prosecution of war. Their proper application is essential to the exercise of command and to successful conduct of military operations. The degree of application of any specific principle will vary with the situation and the application thereto of sound judgment and tactical sense.**

The success of the Finns in the two operations discussed here was due primarily to their proper application of the principles of war.

In both operations which have been discussed, the principle of the *offensive* was applied by the Finnish commanders. The taiga terrain offers excellent means for conducting local defense operations by small units, but the presence of numerous obstacles and dense forest precludes coordinated defensive operations by large units. This same terrain offers excellent opportunities for offensive operations by small units provided these forces are organized and equipped to achieve a high degree of cross-country mobility.

In both operations the Finns resorted to defensive operations primarily to gain time to facilitate offensive operations which were conducted generally against the flanks and rear of the Russian forces. Had the Finnish commanders relied solely on defensive operation, it would have been only a matter of time before the superior Russian forces would penetrate or pass around the defensive positions. However, by attacking the flanks and rear of the Russian columns and by maintaining an offensive patrol system, the Russians were

* Field Manual 100-5, Field Service Regulations, Operations.

forced to assume the defensive on unfavorable terrain and required to fight in all directions.

The Finnish forces possessed great cross-country mobility which enabled them to apply the principle of *maneuver*. By a combination of defense and maneuver the Finnish forces were able to fix the Russians in place. By maneuver of highly mobile forces the Finns enveloped the enemy forces and by striking at weak points in their defenses they were able to accomplish their destruction without, themselves, becoming involved in a major action with the concentrated Russian forces.

Careful Coordination

The principle of *unity of command* was applied by the Finns in both operations. All of the Finnish forces in the area of operations were placed under one commander who was able to coordinate and control the numerous separate operations conducted by small units and direct their efforts toward a common objective, the destruction of the enemy forces. The Russian forces, on the other hand, were operating relatively independent of each other. They were under direct control of an army headquarters which was considerably removed from the area of operations. This command organization did not provide for rapid reaction to unexpected changes or developments.

The principles of *mass* and *economy of force* were applied by the Finns. By the employment of lightly held blocking positions and highly mobile striking forces they defeated vastly superior enemy forces

by concentrating rapidly to attack the enemy's flanks, rear, and weak points along his lines of communications.

The principle of *security* was applied effectively by the Finns who utilized long-range reconnaissance patrols to keep the Russian forces under close surveillance. As a result the Finns were able to strike the Russians where they were most vulnerable. The Russians failed to provide adequate security for their flanks and rear. Their security elements, including the highly trained Siberian Ski Brigade, remained too close to the main body of troops to provide adequate warning to their force or to deny information to the Finns.

In both operations the principle of *simplicity* was applied by the Finnish commander. The plans were based on creating exposed flanks and cutting lines of communication by the proper maneuver of Finnish forces.

The application of the remaining principles of war was demonstrated by both operations. However, their application exerted less influence on the outcome of the battle than those just discussed. The Finns, in both operations, applied the principle of the *objective* by directing all their efforts toward the destruction of the Russian forces. *Surprise* was achieved by exploiting the cover and concealment offered by the dense woods and the low visibility. Skillful use of camouflage also assisted in its achievement. Additionally, the sudden changes in weather and trafficability of terrain were exploited to strike where least expected.

MOVING?

If you are moving, please notify the MILITARY REVIEW, Fort Leavenworth, Kansas, of your change of address. Be sure to include your name, *old* address, and *new* address.

Leadership for the Future--Campus Style

Lieutenant Colonel Samuel H. Hays, *Infantry*
Staff, Commander Seventh Fleet

ACROSS the country a continuous manhunt is in progress.

Eager agents of booming business, industrial, scientific, and governmental organizations are ever on the search for potential leaders. Not last in the pack are representatives of the armed services. In this era of ever-mounting demands for technological, scientific, and educational backgrounds ranging from international politics to nuclear physics, the trail to prospective leadership points with clearer intensity toward the college campus.

On the campus gather recruiters from all business and professional fields, competing with each other for the interested attention of college students. It is time to realize that the degree of success with which the Army competes for leaders on the college campuses of the Nation today may mark the measure of its effectiveness as a combat organization tomorrow.

To those who entered the services some years ago, when the Active Army was a Regular Army, as well as to those who entered during or since World War II, it may be difficult to realize some of the present conditions of leadership hunting. In an Active Army of over one million men, the graduating cadets of West Point do not go far in filling annual officer needs. Important as they are in forming a disciplined and highly motivated nucleus, they alone account for barely half of the annual Regular officer intake. Nor do officer candidate schools produce the heavy volume of sec-

ond lieutenants that once filled the vacancies in expanding divisions. The largest part of the yearly requisition for officers is filled by young men from institutions of higher learning trained in the Army Reserve Officers' Training Corps (ROTC). Included in this college trained product are some 50 percent of the newly commissioned Regular Army lieutenants.

How does one fit young men for a career of service and leadership? How can one determine those potential character traits and aptitudes which will lead to an effective officer career? What kind of instruction will best fit a junior officer for an immediate role in a company and still provide the background for continued professional advancement in a highly technical era? Above all, how can we motivate our youth to serve their country by leading men?

None of these questions are new and it is doubtful if we will ever find final answers for them. At a time when the majority of today's platoon leaders and a considerable portion of tomorrow's generals come from the college campus it would pay well to give careful consideration to the collegiate approach to these problems and the future implications of continued officer training in the university.

Complex Problem Now

The creation of the Reserve Corps by the National Defense Act of 1916, experience with the Student Army Training Corps on college campuses during 1917-18, and the

Success of the Army's Reserve Officers' Training Corps program in developing leaders on college campuses of the Nation today may mark the measure of its effectiveness as a combat organization tomorrow

lessons learned from the officers' training camps of World War I laid the basic foundations for the philosophy and program enunciated by the National Defense Act of 1920 which created the ROTC in its modern form. The value of this institution was proved many times over when some 100,000 ROTC-trained officers came to the assistance of harassed Regulars and National Guardsmen during the expansion for World War II.

What began originally as a relatively simple training proposition, manageable by any civilian educational institution, has become through the years, a task of considerable complexity for well-qualified professionals. Fifty years ago a fairly respectable course in military science could consist of mounted or dismounted drill, the basic principles of tactics, a study of three or four weapons, and instruction in administration from Army Regulations, then encompassed in one rather thin volume.

Just to telescope the bare rudiments of modern military art into the available time allowed in an already crowded academic curriculum is a feat of no mean proportions. It is not enough that a potential officer have a firm grasp of the fundamentals of his trade. In an atomic age he must be prepared to cope with warfare involving nuclear physics, electronics, international

political strategy, and national economic policy—areas well beyond the demands on his predecessors of only a few years ago. Yet with all the increased demand for technical and administrative instruction, the education given fledgling officers must equip them above all with those traits and techniques which will enable them to manage and lead men in battle.

ROTC Junior Division

Probably the first requirement for leadership is the desire to be a leader. Today there are relatively few means of guiding the youth of high school age toward military leadership. The single agency in this area is the Junior Division of the ROTC. It dispenses military training to more than 60,000 students in some 37 military preparatory schools and 262 high schools. Designed to develop a foundation for intelligent and patriotic citizenship in the impressionable teen-age students and to provide such military instruction in weapons, drill, and tactics as might assist the individual if called upon to serve, it also points the way toward leadership and military service.

This Junior ROTC has been critically viewed by many economy minded officials charged with budget and program analysis. Criticism stems from the fact that it touches only a minority of the secondary schools, has been financed primarily from Army funds, and does not directly produce commissioned leaders. On the other hand, when one considers the very limited effort being made among the youth of this age group compared with the extensive training required of youth in the Soviet Union, the entire problem of leadership training at the secondary school level merits serious consideration. Lacking some form of universal military training, there would appear to be a continued need for some method of presenting the teen-age youngster with the ideals of military service and leadership before he is seized by the pseu-

Lieutenant Colonel Samuel H. Hays graduated from the United States Military Academy in 1942 and from the U. S. Army Command and General Staff College in 1943. He was assigned to the 94th Infantry Division in Europe during World War II, was on occupation duty in Germany with the 39th Infantry, and was Headquarters Commandant, European Theater Intelligence School, at Oberammergau. He was on the faculty at USMA during 1947-50 and received his Master's degree in Political Science in 1950 from Columbia University. He was PMST for three years at Montana State University where he taught General Military Science subjects. He is now Assistant Plans officer on the staff of the Commander, Seventh Fleet in the Western Pacific.

docynicism and prejudices only too frequently produced by a partially completed education.

High Production Rate

To find an officer producing program we must turn to the Senior Division in colleges and universities, some 250 of which conduct a four-year course of officer training involving more than 150,000 students and producing in the neighborhood of 12,000 commissioned officers annually. Based on a contract between the Federal Government and each institution, officers and non-commissioned officers from the Active Army conduct courses of instruction prescribed by the Department of the Army, using Government-furnished arms, equipment, training aids, and uniforms. In return the institution agrees to furnish instructional facilities, allow academic credit for the courses, and, under certain conditions, make portions of the course prerequisites for graduation.

This program provides a basic two-year course of three attendances a week for a total of 180 hours of classroom instruction and drill and an advanced course of five attendances per week for a total of 300 additional hours of instruction at the institution plus a six-week summer camp conducted at an Army post. Student incentive to take the program stems from several considerations—college requirements at many institutions, draft deferment provisions for ROTC students, the long traditions of officer training on many campuses, and from the desire to attain the increased prestige and privileges of officer status against that inevitable day of active duty.

Any description of an average ROTC unit could hardly be considered typical. In some institutions the basic course is required for the first two years and acts as a pool from which to select the voluntary applicants for the advanced course. In other institutions both basic and advanced courses are voluntary; some have only

Army ROTC, others have Navy or Air Force units in addition.

Many institutions with one or more units still offer programs training students for a specific branch. This latter arrangement, which was standard for a number of years, has several advantages as well as defects, not the least of which is the more or less rigid production of branch specialized officers for a service whose requirements tend to fluctuate from year to year. The Korean conflict, which caused such a pronounced effect on many areas of military policy, required a wide-scale retraining of officers for branches other than those in which they were trained. This situation gave rise to the development of the General Military Science Curriculum of branch immaterial training which has been adopted recently by more than 60 percent of the colleges. This curriculum is based on the premise that a broad general military education should be furnished at college level, to be followed by specialized branch training at the basic branch school of the service in which the student is commissioned.

As matters now stand, the potential future general arrives on a college campus without having had any previous military instruction, knowing that he faces two years of military service sometime in the future, but without the faintest intention of becoming an officer. In fact, he probably is not at all certain as to what his life work will be. Once on the campus in the midst of the confusion of initial registration he is told by his advisor or a representative of the registrar's office that he is required to take two years of ROTC as a prerequisite for graduation.

Organizational Structure

Once registered in the Army program, our new cadet is issued a uniform. He is not particularly enamored of this apparel since it tends to differentiate him from his fellows. His first ROTC class is in the organization of the Army and ROTC. Since

he usually arrives in the program completely innocent of any knowledge of military terminology or tactics, the problems of differentiating between a first sergeant and a sergeant first class or between a headquarters company and a company headquarters are nearly insuperable. The intricacies of organization in the Department of Defense tend to remain among the great unknowns.

The cadet then faces some 25 hours of rifle marksmanship. In this subject he takes a rapid survey of nomenclature, cleaning and functioning of the *M-1* rifle, and the traditional exercises of preliminary rifle marksmanship training with a brief orientation in the carbine, pistol, and hand grenade for garnishing. Since most boys like weapons and shooting this course stimulates interest in rifle marksmanship and provides an excellent starting point for military training.

The next classroom subject presented is 30 hours of American Military History which includes study of the development of the United States Army in terms of its organization, weapons, tactics, administration, training, leadership, and policy from the battles of the Revolution through the many campaigns and skirmishes of the past 180 years.

To the uninitiated, dismounted drill and instruction in military courtesy and discipline are the epitome of ROTC training. In fact, these courses make up approximately one-third of the time devoted to the basic course and only one-fifth of the time allowed in the advanced course.

Draft Deferment

On the completion of the first term the freshman student is offered an opportunity to apply for a draft deferment on the basis of a promise made by him to apply for the advanced course at the end of his sophomore year. Depending upon his draft eligibility, status in his draft district, and the degree to which his interest has been excited, he may submit his application. He

is then brought before a board composed of several members of the military staff and a representative of the civilian faculty and if considered to be potential officer material is given a draft deferment.

In the sophomore year the General Military Science student begins with a 25-hour study of map reading, starting on the level normally given in basic training but advancing at least, in part, to the standards required by the service schools. In map reading he finds a subject that is concrete, practical, and one for which he can see a ready application.

A survey of the crew-served weapons found in the infantry battalion next occupies the cadet's attention. Machineguns, automatic rifles, 60-mm, 81-mm, and 4.2-inch mortars and recoilless rifles are examined as to their nomenclature, care, functioning, and employment with time being devoted to the gunnery of both direct and indirect fire weapons.

During the second year the sophomore may get the chance to exercise command responsibility as a squad leader or junior noncommissioned officer. The actual acting in a leadership role stimulates interest and does much to develop poise and assurance, as well as to give the military staff an opportunity to size up the student's relative leadership potential.

Toward the end of the sophomore year the procedure for selection for the advanced course is initiated. In addition to a physical examination, each student is required to take the ROTC qualification examination which is similar in many respects to officer candidate examinations. Based on the results of these tests and on their observations in the classroom and at drill, the military staff, in conjunction with institutional authorities, selects those students best qualified for officer training.

Not all of the best officer material may desire to continue. The prestige of the program on the campus, the personalities and ability of the military staff, the attitudes

of the student body and faculty—all play a part in attracting the student into the advanced program.

With the end of the basic course the largest portion of ROTC students have completed their preservice training. For many of them it constitutes the only military instruction they will receive. They are now eligible to apply for an E-3 rating in the Army Reserve, but, beyond that tangible advantage, the materials they

tenant's commission in his pocket.

The advanced student initially studies the principles, traits, and techniques of military leadership as taught in service schools. This 12-hour course lays the foundation for the student's new role as a cadet noncommissioned or commissioned officer and initiates his theoretical and practical training in leading and managing others.

The course in leadership logically leads



Army instructor conducting map reading class for University of Hawaii ROTC cadets

have studied and the skills mastered can be counted only as training in citizenship.

The junior year brings an abrupt change of pace. The student now is a volunteer and is under contract to the Government. In return for his promise to take two additional years of ROTC plus summer camp, devoting five hours a week to the study, he is offered 90 cents a day in lieu of subsistence, his uniform, continued draft deferment, and a reasonably good chance of being graduated with a second lieu-

to instructor training in military teaching methods. In this 20-hour course the student studies the fundamentals of giving military instruction, subsequently preparing and presenting one or more brief periods of instruction for his classmates to critique.

Since the GMS graduate may be selected for an assignment in almost any branch, he must have some knowledge of the organization and missions of the various arms and services together with an idea of the roles

performed by officers in these services. A 30-hour course, following instructor training, is designed to fill this need.

Tactics

The inevitable study of tactics is next. It begins with the advanced training of the individual in camouflage and concealment and continues on through the Infantry squad and platoon, techniques of fire, and communications methods and equipment. Under classroom conditions the

prior to the end of the school year. These students who have demonstrated outstanding qualities of leadership and who stand in the upper half of their class in academic rating, will be scrutinized further at summer camp and, if confirmed at the end of camp as Distinguished Military Students, will be authorized to apply for Regular Army commissions.

Summer Camp

The first practical field work undertaken



Cadets from Kansas State College, Manhattan, discussing field of fire during defense tactics training with Company "F," Reserve Officers' Training Corps summer camp

60 hours of instruction is limited to the techniques of the sand table, map exercise, lecture, and training film.

Toward the end of the junior year the relative merit of the members of the class in their academic standing and leadership potential is studied carefully by the military staff. Based on the considered judgment of the Professor of Military Science and Tactics, tentative designations as Distinguished Military Students are made

by most ROTC cadets is accomplished during the six weeks of summer camp. Here, under the auspices and supervision of a designated military installation, officers from the ROTC institutions within the Army area plan, prepare, and conduct an intensive training program which is designed primarily to provide practical work for the subjects presented in theory on the campus. In addition, the cadet is expected to develop an appreciation of Army life

and the teamwork, relationships, and functions of the arms and services to assist him in his branch assignment.

As the camp continues each student is rotated into positions of leadership from squad to battalion and regiment. He is tested for proficiency on the range in firing weapons, in tactics, and in general subjects. He is rated weekly on his demonstrated attributes of leadership and character by the military staff officers and noncommissioned officers in charge of his cadet company or platoon.

Where the Army units at the installation provide adequate support, presenting a disciplined, efficient, and well-trained appearance, the cadet can obtain a very favorable impression of Army organization and efficiency. This favorable impression can be reinforced considerably by providing opportunities for each cadet to spend some time with a company-size unit and for providing associations with the junior officers whose life he is preparing to share.

The final capstone to the structure of precommission training of the potential officer is laid during the final year of instruction. The cadet now becomes a cadet officer, if he has not already been appointed one, and takes over some portion of the responsibility for the operation of the cadet corps at his institution—as a platoon leader, company commander, or battalion or regimental staff officer. His classroom instruction begins with a course in the principles of operations, including staff procedure, combat intelligence, preparations of estimates and orders, and instruction in the organization and operation of military teams.

The continued requirement for spreading the student's attention over all of the arms and services and to the higher levels of command limits the grasp of detail that can be expected of him in any one branch or service. The difficulty of visualizing and understanding the details of unit organization continues to be one of the greatest obstacles to maximum efficiency. This GMS

approach weakens the preparation of the student for a specific branch. On the other hand, it does provide him a broad basic platform of military knowledge on which to build proficiency with additional branch training.

During the fall term those who were confirmed as Distinguished Military Students on the basis of their academic and summer camp records are interviewed and urged to submit their applications for the Regular Army. Recalling that half of the annual intake of Regular officers comes from this source it is readily apparent that this is another critical period in the ROTC program. The problem of securing the best possible material from among those considered qualified is a continuous one for all officers on ROTC duty. One of the most obvious hurdles is the cadet's lack of a knowledge of what Army life is really like in comparison with the job opportunities he may be offered in surroundings with which he is familiar. Are the incentives offered, the interest aroused, and the example set sufficient to break the barrier? Each year there is a new test of the drawing power and career attractiveness of the Army.

Branch Selection

Also during the fall period branch selection is conducted for those students being graduated within the year. Each student has five choices, including Infantry, Artillery, and Armor. His choices are considered by a board, consisting of members of the military staff and representatives of the institution, in light of his leadership, academic standing, field of study, civilian experience, demonstrated aptitudes, and abilities. The board then arrives at a recommended list of five choices in order of priority which are submitted to the Department of the Army for final determination and assignment.

Following the study of operations, logistics is introduced as a combination package of supply procedure, foot and motor movements, and motor pool operations. Military administration and correspondence coupled

with what amounts to the "A" course in Military Justice follows logistics.

The last term of classroom work is devoted to service orientation on what might be considered background for the future officer's problems in the area of troop information and education. Military problems and policies of the United States, coupled with a survey of the world situation and the geographical basis for national power, comprise the bulk of the course.

Drill during the senior year is primarily an exercise in command and leadership.

loyally through the four years of college study finally steps up to accept his college diploma at commencement and finds the PMST present with the other heads of schools and departments prepared to give him his commission as a second lieutenant in the United States Army Reserve. For the students who have been designated Distinguished Military Graduates and who have been accepted by the Department of the Army for commissions in the Regular Army, Regular commissions and orders to active duty are on the way.

In reviewing this college officer training



ROTC students from Murray State College, Kentucky, "getting the feel" of a tank

In many institutions it is planned and conducted entirely by the cadet officers. Where this is possible, considerable profits are realized in the increased *esprit* and morale in the cadet corps and in the accelerated growth in poise and assurance on the part of the cadet officers.

Commencement

At last June arrives and with it the anticipated day of graduation. The cadet who has followed the course of ROTC

program what stands out? Potential officer material arrives on the campus with little knowledge of, or motivation for, military service or leadership. The existing incentives for officer training are largely compulsory or security-seeking in nature, appealing to the more selfish instincts of the student. At the institution his attention is diffused in a multitude of directions. His major field of academic concentration, his future profession, athletics, a part-

time job, extracurricular activities of various types—all place claims on his time and interest. The amount of time and attention he can afford to devote to his military studies, not high at best, is further curtailed by the relatively small amount of academic credit normally allowed for ROTC courses in proportion to the time required for their satisfactory completion.

Perhaps the greatest weakness lies in

On the other hand, the ROTC-trained officer comes from the most likely sources of intelligent, ambitious, and educated young manhood. He has been the object of severe competition between the enticements and drawing power of concentration in various academic and professional fields of study and between the officer training programs of the several services offered on the campus. His intellect, thought proc-



A Prize Winning Volunteer Drill Team of the Army, Navy, and Air Force ROTC from Purdue University, Lafayette, Indiana, drilling in Pentagon courtyard, after winning Competitive Drill Team demonstration at Cherry Blossom Festival in Washington

the area of disciplinary training and in the development of a sense of responsibility. The military staff members of the ROTC program have no more control over students than any of the other college instructors and can only influence student attitudes and obedience through example and persuasion. This places extreme emphasis on the character and ability of the instructor as well as leaving the student with a somewhat distorted picture of military discipline.

esses, and cultural and scientific background have been stimulated and cultivated by academic disciplines and study, many areas of which are urgently required by the services. He has been observed in class and at drill and belongs to a selected group of those interested in obtaining a commission. His very unfamiliarity with Army ways leaves him still responsive, pliable in attitude, and susceptible to positive indoctrination at the service school and his first unit.

Conclusions

The implications should be clear:

1. Greater responsibility must be assumed by branch schools and unit commanders for the continued indoctrination and training in discipline, customs of the service, standards of an officer, and basic branch techniques than was required when the majority of new officers had previous military service and branch training.

2. Continued emphasis must be placed on selecting highly qualified officers as ROTC instructors, for on their shoulders rests the bulk of the load of selecting future leaders.

3. Installations and units providing administrative and training support for ROTC summer camps cannot devote too much effort in producing the highest possible standards in the training provided cadets.

4. Financial, personnel, and logistic support for the ROTC program should be viewed, not as the requirements for just another training program, but as necessary costs in a deadly serious manhunt in competition with every other organization in search of leaders.

As it now exists our colleges are producing thousands of fine young officers who require only the molding influence of service in a disciplined unit to make them outstanding leaders. However, as with all programs there are probably many areas for improvement:

1. The problem of initial motivation, preferably at secondary school levels, deserves serious consideration.

2. Means for determining relative aptitude and potential for officer leadership could well be developed on a much more scientific and valid basis than is apparent in the methods currently employed in the selection of advanced students and Distinguished Military Graduates.

3. Much needs to be done to increase the relative academic status of officer training on the campus and in integrating the military curriculum with the sub-

jects already taught in the average college.

4. The basic course should have a much clearer definition of its mission in view of the large number of students who never attain officer status or take further military training.

5. The fundamental requirements of officer training need to be brought into much sharper focus, increasing the concentration on character and leadership training and reducing the subject matter coverage to that which can be mastered clearly in the time allotted.

6. The many occasions on which we currently cut our own throats through shortsighted budgetary policies in providing uniforms, equipment, and support funds in comparison with the officer training programs of other services should be reduced sharply.

7. The required standards of cadet performance in the subject taught need to be raised. The attainment of minimum standards could well be determined through standard examinations administered either as a graduation requirement or an entrance requirement to the branch schools.

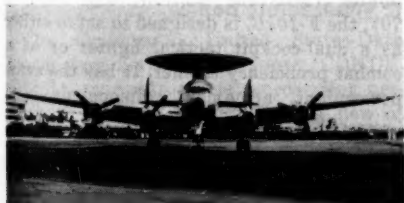
While the Army always will require and expect the United States Military Academy to produce disciplined and dedicated young officers to serve as the nucleus around which to build its officer corps, in terms of numbers alone the leadership of our civilian army lies in the hands of college-trained officers. The ROTC program, resulting from years of experience and tradition, already has produced many of our most outstanding military leaders. The caliber of officers we obtain from the college campuses throughout the Nation today depends entirely upon ourselves—the amount of effort and money expended and the quality of instructors assigned to getting them, as well as to the apparent attractiveness of Army service. If we expect to possess the highest type leadership in our officer corps in the years to come, we must give, wholeheartedly, our best efforts in the manhunt of today.

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Radar Picket Planes

A radar picket aircraft, the *CL-257*, is under development as a replacement for the *WV-2 Superconstellation* (MILITARY REVIEW, May 1955, p 66). The *WV-2*, used in an early-warning radar screen on the eastern coast of the United States, features a seven-foot-high radome protruding above



Experimental radar picket plane, *WV-2E*

the fuselage and a huge surveillance radar in another radome beneath the fuselage. It is powered by four 3,250-horsepower turbocompound engines and has set an engine endurance record of 1,261 hours. A later version of this plane, the *WV-2E*, mounts a 30-foot disc-shape radome which houses its radar antenna.—News item.

Antisubmarine Tactics

Six escort destroyers, one escort vessel, and two submarines are demonstrating the latest antisubmarine tactics to the navies of South American countries in a

three-month training cruise. Divided into two groups, one operating on the Atlantic coast and the other on the Pacific coast, they will join with ships of the host countries in combined maneuvers after the demonstrations.—Official release.

Ramjet Helicopter

The *YH-32* ramjet helicopter, now under test by the Army and Navy (MILITARY REVIEW, Jan 1957, p 66), features a plexi-



Ramjet *YH-32*

glass windscreen that can be installed or detached quickly.

The 12-pound *8RJ2B* ramjet motors which drive the 23-foot rotor blades of the helicopter are 8.4 inches in diameter, 21 inches long, and develop about the equivalent of 45-horsepower each. As originally

designed, this aircraft flew with a canted rudder instead of a tail rotor to compensate for torque, but a small single-blade tail rotor has been added to meet military requirements.—News item.

Artificial Respiration Device

Field tests are being planned for an artificial respiration device which can be used to treat nerve gas casualties in the field during a gas attack. Called the mask-



Mask-to-mask resuscitator

to-mask resuscitator, the device utilizes the power developed by an aid man's breathing to supply purified air to the casualty's lungs, even though treatment is being given in a toxic atmosphere. The resuscitator consists of two hose assemblies joined by a rubber connector to an anesthetist type facepiece, a modified Army field protective mask connected to the end of one hose assembly, and a standard gas mask canister attached to the other. In experiments, artificial respiration has been given to a casualty while he is being car-

ried on a stretcher—an impossibility before. The operation of the device is said to be so simple that it can be used by a nonprofessional with a limited amount of training and practice. It can be used also in artificial respiration in drowning cases, electrical shock, suffocation, and similar accidents.—Official release.

Machinegun Adopted

The United States Army has adopted a lightweight, general-purpose machinegun to replace the three .30-caliber machineguns now used by ground troops (MILITARY REVIEW, Dec 1956, p 64). Designated the *M60*, the new gun weighs 23 pounds and utilizes a stellite-lined barrel with increased firing life. The air-cooled, gas-operated weapon is 43 inches long and has a firing rate of 600 rounds per minute.—Official release.

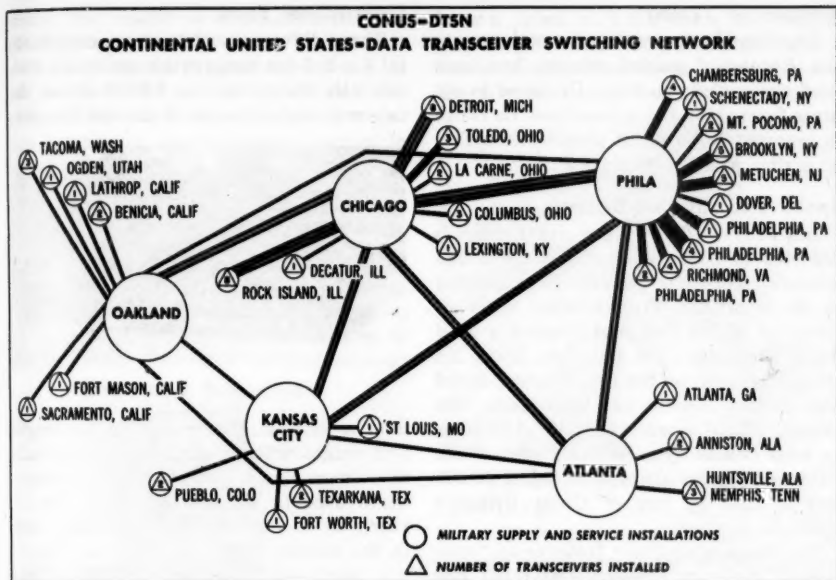
Two-Seat Fighter

A two-seat version of the *F-104 Starfighter* (MILITARY REVIEW, Jun 1956, p 70), the *F-104B*, is designed to serve either as a dual-cockpit tactical fighter or as a combat proficiency trainer. It has the same powerplant, armament, dimensions, and



F-104B in initial test flight

capabilities as the single-seat *F-104A*. Both the single- and two-place versions are in quantity production. The armament of the *Starfighter* has not been announced, but, according to *Jane's All The World Aircraft, 1956-1957*, it mounts a Vulcan 20-mm cannon (MILITARY REVIEW, Nov 1956, p 76).—Commercial release.



United States Army Streamlines Supply System

The Continental United States-Data Transceiver Switching Network (CONUS-DTSN), an electronic data-processing network, is designed to speed up the flow of supplies and keep stockpiling to a minimum. Its development is a direct outgrowth of the recently field tested logistical concept called the Modern Army Supply System (MASS) (MILITARY REVIEW, Sep 1966, p 68). In the data-processing network, telephone lines connect switching centers in Philadelphia, Atlanta, Chicago, Kansas City, and Oakland. Interconnected to these centers are 33 military logistical and supply installations. Data transceivers are used to exchange information on punched cards between all network points. Cards punched at one end of a circuit can be duplicated rapidly at the other end using communication lines. An estimated million such transactions can be handled daily.

Besides the saving in time required to

process and transmit information, requests, orders, and reports, a further saving is expected to result from the reduction of materials in supply lines and stocked in depots. Initial users of the network are Quartermaster, Ordnance, Signal, and the Overseas Supply Agencies. Future users will include all other branches of the Army.

It is planned that the system will be used also in the processing of personnel assignments in the Zone of Interior and overseas. In this way, the use of numerous replacement centers can be eliminated by having the cards sent through the processing centers and by having the men report directly to their new assignments. It is estimated that over one million military personnel will be administered by the system. Studies are underway also to determine how CONUS-DTSN can be utilized to ease the transition from peace to war in an emergency.—Official release.

'Regulus II' Tested

Regulus II, the supersonic successor to the *Regulus I* guided missile, has been fired successfully in tests. Designed to operate from ships and submarines, its range is reported to be much greater than that of earlier models.—News item.

Speed and Altitude Records

An *F11F-1 Tiger* Navy jet fighter is reported to have set unofficial speed and altitude records for jet planes. According to the report, the *Tiger* climbed to an altitude of 72,000 feet, and reached a level flight speed of 1,220 miles an hour. No official comment on the reported new speed and altitude records has been made. The present official speed record of 1,132 miles an hour is held by a British *Fairey Delta FD2*, and the jet altitude record of 65,889 feet is held by one of Great Britain's *Canberra* bombers.

The swept-wing *Tiger* features an "area control" designed fuselage (MILITARY REVIEW, Nov 1955, p 65), and is powered by a 7,800-pound thrust *J65-W-6* axial flow



Wasp-waist *F11F-1 Tiger*

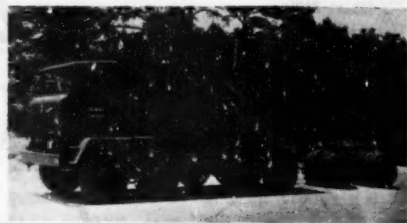
turbojet engine with afterburner. It is armed with four 20-mm cannon and can carry air-to-air and air-to-ground missiles.—News item.

Language School Grows

The Army Language School at Monterey, California, has added Burmese to its curriculum, bringing to 29 the number of languages taught. Six hundred of the 1,960 students enrolled in the school are studying Russian.—News item.

Eight-Wheel Truck

Three different models of an experimental 8 x 8, 5-ton cargo truck are under test. Officially designated the *XM282* series, the cab-over-engine design of the vehicles per-



Experimental 5-ton truck

mits a considerable reduction in length and weight without diminishing the available cargo space. Although many components used in the *XM282* series are already in the supply system—being used in the standard *M34* 2½-ton and *M41* 5-ton trucks—the new 8 x 8 vehicles represent a radical departure from the previous program of merely improving tried and approved basic designs. The three models differ only in cargo bodies and transmissions. The model pictured above is towing two of the Army's new rolling fluid transporters (MILITARY REVIEW, Mar 1957, p 64).—Official release.

Radar Developments

A new mortar-locating radar and a mobile radar with an air-inflated antenna have been developed for the United States Armed Forces. The mortar-locating set, designated the *AN/MPQ-4*, is an improvement over the mortar locator used in the later stages of the Korean war. The entire set is mounted in a single, easily towed, two-wheel trailer, and operates on a new beam technique whereby the mortar projectile appears as blips on the radar screen. The operator centers hairlines on the blips and the computer gives a direct map coordinate reading of the enemy mortar position. This set is expected to in-

crease the speed of countermortar fire greatly.

The air-inflated paraballoon antenna of the mobile radar set can be deflated and unzipped into sections, and the entire system completely dismantled and packed in a very few minutes. A trained crew can set up the radar and have it ready for operation in two hours. The vinyl-coated fiberglass fabric antenna weighs 1,690 pounds and stands 30 feet high when inflated. It can function in temperatures ranging from 140 degrees Fahrenheit to 60 degrees below zero, and in winds up to 125 miles an hour. The inflated antenna



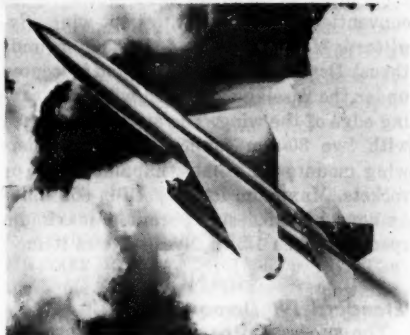
Improved mortar-locating radar

rotates at six revolutions per minute inside a protective radome envelope. Air pressure in the radome is 0.17 psi above atmospheric pressure and will not cause discomfort to operating personnel. The entire set can be broken down into packages of 200 pounds or less and transported in four standard 2½-ton trucks.—News item.

'Bomarc' in Mass Production

The far-ranging *Bomarc IM 99* ground-to-air missile which has been undergoing tests for several years is reportedly planned for mass production. The *Bomarc*, unofficially said to weigh 5,000 pounds and

have a speed of 1,650 miles an hour, is propelled by two ramjet engines and a booster rocket. The report stated that the *Bomarc* eventually may be designed to

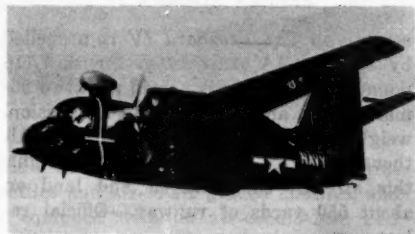


Bomarc Interceptor Missile 99

carry and fire its own rockets, after which it would return to its home base; thus the *Bomarc* would become the first air defense two-way missile.—News item.

Submarine Killer

The Navy's *S2F-2* is the first carrier-based, twin-engine antisubmarine aircraft to combine the hunter-killer function previously performed by a two-plane team.



S2F-2 submarine hunter-killer

The *S2F-2* has a retractable radome under the rear fuselage behind a large bomb bay; is especially designed to accommodate new and larger antisubmarine weapons; carries sonobuoys in special housings in the rear end of the engine nacelles, and has underwing mounts for rocket weapons.—Official release.

ITALY

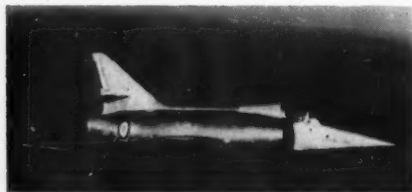
Italian Jet Breaks Sound Barrier

An experimental jet fighter, the *Sagittario II*, is the first Italian-designed and built plane to fly faster than sound. In the conventional single-seat, swept-wing *Sagittario II* the exhaust of the 3,600-pounds thrust *Derwent 9* turbojet engine is located under the fuselage and even with the trailing edge of the wing. The aircraft is armed with two 30-mm cannon and has underwing mounts for bombs, napalm tanks, or rockets. Maximum level speed is 652 miles an hour, but its design permits a maximum speed of Mach 1.2 in dives.—News item.

FRANCE

'Etendard IV' Demonstrated

The supersonic *Etendard IV* (formerly designated the *Mysteré XXIV*) has been flown in demonstration for NATO repre-



France's *Etendard IV*

sentatives. The *Etendard IV* is propelled by a SNECMA Atar 101-E-3 with 7,715 pounds of thrust. It is armed with two 30-mm cannon, and, according to its mission, weighs between six and seven tons. Although slightly supersonic in level flight, this aircraft can take off and land on about 550 yards of runway.—Official release.

MALAYA

Defense Agreement

The Malaysian Federation and Great Britain have agreed on a defense pact to become effective when Malaya, now a British colony and protectorate, becomes independent later this year. Under the terms of the agreement, Malaya will receive 56

million dollars in financial assistance, and Great Britain will have the right to maintain in Malaya her own and Commonwealth forces necessary for the fulfillment of defense obligations.—News item.

DENMARK

Defense Spending

According to the Danish Army newspaper, *Vor Haer*, Denmark spends a lower percentage of her gross national income on defense than any other country in western Europe or NATO. The percentage of national income devoted to defense spending by various nations is quoted by the Danish paper as follows:

| | |
|---------------|--------------|
| United States | 11.0 percent |
| Great Britain | 9.0 percent |
| Canada | 7.2 percent |
| France | 6.4 percent |
| Sweden | 4.2 percent |
| Denmark | 3.6 percent |

The Danish figures do not consider the defense aid received from the United States. The defense expenditures of the Soviet Union for 1957 will be 24 billion dollars, about 16 percent of the total annual budget. This is a slight reduction from the 17.5 percent of the Soviet national budget expended for defense purposes in 1956.—News item.

CANADA

Ships Added to Fleet

Two destroyer-escorts, a minesweeper, and a light fleet aircraft carrier are the most recent additions to Canada's naval forces. The *Bay* class coastal minesweeper, the *Chignecto*, is the third of six ordered to replace six vessels turned over to France in 1954 under the NATO mutual aid agreement. The destroyer-escorts, the *Columbia* and the *St. Croix*, are 2,000-ton antisubmarine frigates; carry the *Limbo* depth charge mortars and homing torpedoes; and have a speed in excess of 25 knots. The light fleet carrier, *Bonaventure*, is the first Canadian-owned vessel of this class to join

the Royal Canadian Navy. Constructed in England, the new carrier was originally named the *Powerful* but was renamed by Canada when it was purchased from Great Britain. The 20,000-ton *Bonaventure* will operate 30 *F2H Banshees* and *S2F Trackers*.—News item.

Planes in Development

A giant antisubmarine plane is currently under development and will be flight tested in the spring of 1957. The new plane, called the *Argus*, is powered by four turbocompound engines, and is over 128 feet long. It will have a cruising speed of 200 miles an hour, a range of about 4,000 miles, and an altitude limit of 20,000 feet. It is said to be equipped with the most comprehensive collection of electronic detection apparatus ever assembled into one aircraft for hunting submarines, and will function as a hunter-killer since it carries weapons for the destruction of such vessels when detected. In another announcement it was disclosed that 60 million dollars will be spent during the next fiscal year in the development of the delta-wing supersonic *CF-105* interceptor (MILITARY REVIEW, Jul 1956, p 72).—News item.

PAKISTAN

British Airbase Closes

Great Britain's withdrawal of military forces from India and Pakistan has been completed, and the Pakistani Government has been given control of the Royal Air Force Base at Mauripur near Karachi. Mauripur, the last British base in the Indian subcontinent, has been a main base on Britain's air routes to the east. In 1956 an average of three British military planes stopped there daily. The only large airbase retained by Great Britain in the western Indian Ocean area is at Aden at the southern end of the Red Sea. A chain of small airfields along the coast of Arabia between Aden and Mauripur remains under British control.—News item.

SYRIA

Arms Received

It is reported that Syria has received small arms, ammunition, armored cars, tanks, and *MiG-17* jet fighters in a 28 million-dollar deal completed some time ago with Soviet Russia. About 12 *MiG-17's* are said to be located at an airbase at Risafe, 100 miles southeast of Aleppo, Syria's largest city.—News item.

SWEDEN

Supersonic Interceptor

Preparations are underway for the quantity production of the *SAAB J 35 Draken* (MILITARY REVIEW, Jul 1956, p 74). The supersonic double-delta *Draken* is powered by a Swedish-built *Rolls-Royce Avon* turbojet engine with afterburner, and is intended as a replacement for the *SAAB-29* interceptor fighter which has been in service in the Swedish Air Force since 1951.



Sweden's *J 35 Draken*

The *J 35* will be able to carry rocket projectiles and air-to-air guided missiles, and is equipped with an air-conditioned and pressurized cockpit and Swedish-designed automatic ejection seat.—News item.

INDONESIA

Purchase Soviet Jeeps

Indonesia has announced the signing of a contract to buy 550 jeeps from the Soviet Union. The jeeps are said to be for the use of the Indonesian Air Force.—News item.

BRAZIL

Agree on Missile Station

Brazil has agreed to the United States erecting a guided missile tracking base on the Brazilian island of Fernando de Noronha.

The island, which is 125 miles to the east of the hump of Brazil, is in the 40-mile wide, 5,000-mile-long guided missile range between Florida and Ascension Island in the South Atlantic. The agreement, which will run for five years and carries a renewal clause, permits the installation of electronic equipment by which the United States can check the flight of her own missiles and detect missiles that might be fired by other nations. Brazilians will assist American technicians in operating the facility, and it is planned that they will gradually replace the United States personnel. The island installation will be under the command of a Brazilian officer and only the Brazilian flag will be flown.—News item.

HUNGARY

Uranium Mining Pushed

More than 100 Soviet mining experts are working in the Hungarian uranium mines near Pécs, where about 25 tons of ore are being mined daily. Barracks for 25,000 uranium miners and refinery workers are planned for construction in this area. It is reported that the Soviet Union had agreed to pay Hungary only cost plus 10 percent for the uranium ore extracted.—News release.

WEST INDIES

Giant Drydock Planned

Drydock and repair shops will be built at Grand Bahama Island, 75 miles east of West Palm Beach, Florida, to accommodate such giant tankers as the *Universe Leader* (MILITARY REVIEW, Nov 1956, p 76) and other even larger tankers now in the planning stage. The facilities are expected to be ready in about two years; about 3,000

to 4,000 people will be involved in the operation of the giant installation. The *Universe Leader*, which can carry 600,000 barrels of oil and is too wide to pass through the Panama Canal, is the world's largest vessel. Both Japanese and United States shipyards have plans for the construction of 100,000-ton tankers.—News item.

WEST GERMANY

Airbase Construction

West Germany has agreed to build 29 airbases for North Atlantic Treaty forces in addition to the 19 already in use in that country. Units of the new West German Air Force will occupy some of the bases, all of which are expected to be ready for use by the end of 1959.—News item.

First Airplane Delivered

The first West German-built military aircraft has been delivered to that country's new Luftwaffe. It is a single-engine *Do 27* reconnaissance plane, and the first of a 469-plane order. In contracts for equipment for West Germany's armed forces, United States and British suppliers have each received about three million dollars in orders, and French firms approximately one million.—News item.

JAPAN

Air Force Buildup

Top priority in Japan's defense buildup program for Fiscal Year 1957 will go to the air force. Under current plans, the air force strength will be increased by 6,300 men, and the navy will receive 2,000 more men. A scheduled 10,000-man increase for the army has been postponed.—News item.

Ships for Japanese Navy

The United States has offered to pay for two more destroyers for the Japanese Navy. The proposed destroyers will be of about 2,100 tons each, and designed and

built in Japan. These vessels would give Japan a fleet of six destroyers, six destroyer-escorts, eight frigates, and one submarine. Two of the destroyers and two of the destroyer-escorts are on loan from the United States.—News item.

Postwar Tank Built

A 35-ton medium tank, now in production by the Mitsubishi heavy industry plant, is the first tank to be manufactured in Japan since the end of World War II. The \$277,000 armored vehicle is equipped with a 90-mm cannon, a 12.77-mm anti-aircraft gun, and a 7.7-mm machinegun. It has a speed of about 28 miles an hour and is driven by a 600-horse-power diesel engine.—News item.

GREAT BRITAIN

Submarine Program

The 1,500-ton *Rorqual*, the second of eight planned *Porpoise* class submarines to be completed, incorporates an advanced design electrical propulsion system which is said to give it a comparatively high submerged speed. There were more than eight undersea vessels of the *Porpoise* class in the original construction plans, but the project was reduced in favor of development of atomic-powered submarines. The British submarine program also includes two experimental high-speed streamlined vessels, the *Explorer* and the *Excalibur* (MILITARY REVIEW, Aug 1956, p 72). The hydrogen peroxide engines of these experimental undersea craft give an underwater speed of about 25 knots.—News item.

Reduction in Air Force

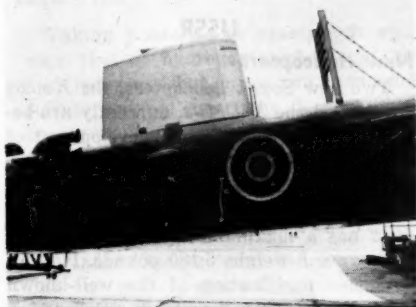
Great Britain is disbanding some of her Royal Auxiliary Air Force and Naval Reserve Air units. It has been announced also that the number of *Hawker Hunter* jet fighters (MILITARY REVIEW, Aug 1956, p 71) on order from the manufacturers has been reduced by 100.—News item.

'Skylark' Rocket Tested

The British *Skylark* rocket being tested at the Woomera rocket range in Australia is driven by a *Raven* rocket motor which develops a thrust of 11,500 pounds for about 30 seconds. The rocket, 25 feet long and 17½ inches in diameter, is expected to reach a height of 70 miles in its initial version; more advanced models will be designed to reach 120 miles. The *Skylark* will be used for research of the upper atmosphere.—News release.

Anti-Icer Test

Tests of a "hot gas" anti-icing device include the use of a section of aircraft wing mounted vertically atop the fuselage of the test aircraft. This wing section is movable to simulate various flight conditions, and is warmed by hot air pumped into it. Tests are made while the test bed



Anti-icing test device

plane is flying at high altitudes. A 36-nozzle spray, mounted ahead of the wing section, supplies the water for icing.—Official release.

Naval 'Strike' Aircraft

A new warplane, the *NA-39*, said to be the world's most advanced naval "strike" aircraft, is under construction. The *NA-39* is designed for supersonic speeds as well as the slow flight required for landing on aircraft carriers. Its wings are machined from solid blocks of lightweight metal and

further lightened by hollowing. It is reportedly capable of long-range offensive operation with rockets, bombs, torpedoes, or mines, and uses jet power to control airflow over the wings at low speeds by blowing air down over the landing flaps.—News item.

AUSTRALIA

Atomic Radiation Protection

Australia's new aircraft carrier and flagship, the *HMAS Melbourne* (MILITARY REVIEW, Aug 1956, p 72), is equipped to withstand the radioactive effects of atomic explosions. The equipment includes facilities for washing off the radiation with sea water. All living and working areas of the vessel can be closed down and hermetically sealed so that personnel can work inside in filtered and pressurized air.—Official release.

USSR

New Helicopters

Two new Soviet helicopters, the *Kamov Ka-15* and the *Mil Mi-3*, currently are being tested. The *Ka-15* is a development of the earlier *Ka-10* (MILITARY REVIEW, Dec 1956, p 72) and employs the same layout of two coaxial three-blade rotors. The *Mi-3* has a maximum speed of 124 miles an hour and weighs 5,180 pounds. It is an extensive modification of the well-known *Mi-1 Hare* with a four-blade rotor and a more powerful engine.—News item.

Combination Computer

According to British naval experts, the Soviet Union has developed a combination torpedo and gunnery computer which works out firing data and makes target-finding calculations. The computer is in use on the *Skoryi* class destroyers. This class of destroyer is known to be equipped with modern target-finding and gun-laying radar for its four 5.1-inch guns. It is also armed with ten 21-inch torpedo tubes.—News item.

Oil Reserves

Known Soviet oil reserves have been doubled in the past year, making the USSR, with a reserve of over 23 billion barrels of oil in widely scattered fields, fifth among the world's oil producers. The United States is third with reserves of over 32 billion barrels. Kuwait, on the northwest corner of the Persian Gulf, leads with 50 billion barrels, about 21 percent of the world's supply.—News item.

INDIA

Purchase Bombers

India has ordered 68 *Canberra* jet aircraft from British producers. The 56 million-dollar order is for 54 *Mark VIII* bombers, six dual-control trainers, and eight photographic reconnaissance models. The *Canberras* will be incorporated into the Indian Air Force, and were selected in preference to *Ilyushin* bombers offered by the Soviet Union. Deliveries will begin later this year.—News item.

SWITZERLAND

Blood Plasma Storage

The Swiss Army is setting up two subterranean laboratories to process, store, and distribute an estimated 100,000 packages of blood plasma needed in a possible war. One laboratory at Zwillütschinen in the Bernese Oberland is already producing plasma. The other underground installation at Amsteg, in the canton of Uri, will go into operation later this year.—News item.

Arms for Citizens

New automatic weapons are being issued to the soldier-citizens of the Swiss Army. The new "assault rifles" are as light as carbines, have a 30-round clip, utilize the same ammunition as the Swiss 7.5-mm light and heavy machineguns, and are effective up to ranges of 320 yards. This locally produced weapon can also fire anti-tank grenades.—News item.

FOREIGN MILITARY DIGESTS

Deterring Future Aggression

Digested by the MILITARY REVIEW from a copyrighted article by Admiral Sir Reginald A. R. P. Ernle-Erle-Drax in the "Journal of the Royal United Service Institution" (Great Britain) February 1956.

IT HAS been pointed out by Rear Admiral Sir A. Buzzard, Captain Liddell Hart, and various others that we badly need an agreed strategy which will fill the present gap between conventional war (non-atomic) and all-out bombing with nuclear weapons. Any future defensive war should, in fact, be "graduated" so that the tactics and weapons employed adequately meet the scale of attack, in order to defeat each act of aggression in a minimum of time with the minimum of force necessary.

It should be made clear to all potential aggressors that once an act of aggression has been committed, the United Nations reserve to themselves the right to take whatever steps may seem best to achieve that end. They would naturally use atomic cannon and atom bombs if it seemed that they could not achieve success quickly without them. They would no doubt avoid the use of the hydrogen bomb unless the aggressor had attacked with such strength that victory appeared difficult without it. And naturally they would try the atom bomb before using its big brother.

Taking Korea as an example, it would seem that no hydrogen bomb should have been necessary, but one or two atom bombs suitably placed near the Korea-Chinese border probably would have compelled the ignominious retirement of the entire Chinese Army. It is perhaps a pity that this was not done, for circumstances were well suited for such action.

A large Chinese Army had committed a flagrant act of aggression; in fact, the Chinese Government, reluctant to take full responsibility, had described them as "volunteers." There was an ample area where such bombs could have been dropped without causing serious civilian losses, and there would have been no objection or difficulty in warning civilians beforehand that they should leave the selected area.

The Risk Involved

No one can make successful war without taking risks, and there was, of course, some risk that China or Russia might retaliate with similar bombs. Certain governments, including the British, were un-

duly alarmed about this. They would not even agree to let General Douglas MacArthur drop conventional bombs on military targets north of the Yalu River, which, particularly if backed by a threat of atom bombs to follow later, might well have ended the war and saved thousands of American lives.

Similar action could have been applied to other cases of aggression in the past if atom bombs had been available. The German armies that invaded Belgium, Denmark, and Holland in the 1914-18 and 1939-45 wars might have found it impossible to press on, or even to retain their conquests, if American atom bombs and missiles were being dropped at intervals on their depots and lines of communications. And if the Germans had retaliated by dropping atom or hydrogen bombs on the big cities of France, there would have been nothing left worth conquering.

The Italian invasion of Abyssinia could have been stopped at once by similar treatment, or by the bombing of their disembarkation ports.

In all these cases, if the atom bomb had been available in time, such support would have immensely encouraged the defending armies and would probably have enabled them to resist with success.

It is desirable that the intended policy of the United Nations in these matters should be made clear to all the world. It is, therefore, suggested that the principal powers of the United Nations should meet together and agree on a statement of policy as outlined in the chart on page 75.

This statement of policy calls for a certain amount of explanation or comment.

Clauses 1 and 2.—Agreement on these, and careful adherence to them, would save millions of lives on both sides.

The question has been asked "why 100,000?" But this figure is entirely a matter for the great powers, or the United Nations, to negotiate. If it is fixed too low, say 10,000 or 1,000, agreement would be

most unlikely and compliance extremely difficult. The figure must be as low as possible, but 100,000 would be a useful first step, and agreement even on that, if carefully adhered to, would save millions of lives on both sides. Such agreement would not mean that we accept the bombing of smaller cities, for it is to be hoped that belligerents usually will have other targets of greater importance and will not wish to waste their major bombing efforts on a medium-size town or city unless it chanced to contain some target of unusual military importance.

Clause 3.—Sometimes, time is of such vital importance that when events are moving swiftly one cannot delay even for a few minutes. But, in general, it should be entirely feasible to warn the inhabitants of a frontier town some hours, if not one or two days, before bombs are dropped.

Clause 4.—The size and strength of an invading army will largely depend on the strength of the defending forces that may be expected to resist it. If the strength of the invaders is small, the United Nations might be able to repel them with conventional weapons. If it is large, we may reasonably hope that there will be depots, airbases, or important points on its lines of communications where two or three atom bombs would cause complete disorganization.

Clause 5.—Great care should be taken to use no bomb that is bigger than necessary, but the weapons used should be such as to show that the United Nations can and will obtain complete tactical mastery in the area under dispute. They should finish the job quickly and decisively, making sure that there is no repetition of the ignominious deadlock that continued for so long in Korea.

It must be admitted that much depends on the exact area where the aggression occurs. Abyssinia and Korea were areas where we could have forced a favorable decision quite quickly. But if the area in

1. Unless forced by the enemy to retaliate, we repudiate all idea of murder-bombing on large cities.

2. We are willing to agree to a list of all cities, in all countries, whose population exceeds an agreed figure of, say, 100,000. These cities shall be immune from bombing unless an aggressor violates this rule, or a particular town occupies a vital position in relation to the advance of an aggressive army.

3. The latter case would arise if the town in question contained a road or rail junction, airbase, or supply depot on which the aggressive army is largely dependent for its maintenance. As a general rule the inhabitants would be warned before any such town is bombed, although for obvious reasons this could not be guaranteed in all cases.

4. We assume that, as with numberless cases in the past (Abyssinia, Austria, Belgium, China, Holland, Korea, and others), any major aggression will usually be supported by an invading army. Our aim will be to exert against this army all the force necessary, and no more, to compel it to withdraw to its homeland.

5. Air or naval forces actively supporting the work of aggression will probably have to be attacked, but in every case we shall use no more force than necessary. When using nuclear weapons we shall hope to use only the atom and not the hydrogen bomb.

6. We shall not use any form of biological or chemical warfare unless forced by the enemy to retaliate.

7. We wish to make it clear that, using atomic weapons when necessary, the United Nations have ample power to enforce their decisions against any armed forces which attempt to invade or occupy some particular area. Admittedly, there might be a limited number of exceptions to this rule.

8. We solemnly warn any nation found guilty of aggression that, if an agreement has been reached to forbid the bombing of large cities, they must, in their own interests, adhere to it with scrupulous care. Any bombing of such a city, even by accident, will call inevitably for instant retaliation; and once started, limitation may be impossible.

There is then serious danger that the people of the aggressor nation would be exterminated by tens of millions.

No doubt the slaughter might extend on both sides until half the human race had been destroyed, but this would be no consolation to the nation whose aggressive action had started the trouble.

9. Obviously, the simple, and indeed the only, solution is for every government, in the conduct of its international relations, to make quite sure that it could never be branded by the United Nations as an aggressor.

dispute is fairly close to the enemy's main centers of military strength (for example, suppose the Communist bloc attempted to annex Greece), there might be a struggle, particularly in the air, that would approach the scale of a major war. The danger in such a struggle obviously would be very great.

Clause 9.—This is the only real solution of the problem. Indeed, it may not be too much to say that until this condition is universally complied with our civilization will be in grave peril.

There would be many advantages in a code of simple rules such as set out here. It should be clear to any aggressor that the prospect of success would be absolutely nil if they were to use nuclear weapons against the full strength of the United Nations whenever they thought it necessary to do so.

If he wished for a trial of strength on the biggest scale the aggressor could, of course, resort to all-out bombing. But this would put on him instead of on us the onus of initiating this form of warfare, and it would probably ensure a process of mutual suicide where tens of millions would be killed on each side.

Even in dictator countries it would seem that public opinion, faced with this prospect, should be able to restrain an aggressive government from such acts of madness.

Further, it should be possible to make good use of public opinion before the invading forces are set in motion. On any frontier where trouble is threatened there are bound to be towns with airbases, depots, and road and rail junctions which would be in grave danger of bombing when fighting started. On the first signs of possible conflict it should be the duty of the Secretary General of the United Nations to get in touch, by letter, telegram, or radio, with the mayor and people of towns in the danger area. He should then con-

vey to them a message saying somewhat as follows:

From the unusual concentration of military forces along or near your frontier it has seemed to the Security Council that your government may be planning to use them for some aggressive action. It is, therefore, my duty to point out to you that, if this were done, the United Nations would be likely to order punitive action against all forces that are moved across your frontier.

The precise action necessary cannot be foretold with any certainty, but there obviously would be grave danger that to hold up aggressive movements your town would have to be bombed. If the movements continued, or were strongly reinforced, it might even prove necessary to use atom bombs, in which case the casualties in your town might well amount to 80 or 90 percent of the population. I would, therefore, urge you to exert all possible pressure upon your government to ensure that they avoid any movements of military forces which might cause the United Nations to brand them as aggressors.

If some policy such as the above were to be adopted, it is important to consider the probable reaction to it of an aggressor nation.

The Reaction

It is useful to note that in September 1955 Russia put forward the suggestion that atom bombs should not be used unless an act of aggression had been certified by the Security Council. At first sight this would seem to indicate that once an act of aggression had been established, Russia would be willing to support or approve the use of atom bombs. Unfortunately, however, she also possesses the power of veto in the Security Council and could equally prohibit their use for the duration of hostilities.

If public opinion failed to prevent it, the reaction of the aggressor govern-

ment would be a matter of great importance once the fighting began.

Aggressor military leaders would at once say to their chief:

You want victory: therefore, we cannot be tied by these paper agreements about not bombing large cities. We want to bomb New York, Chicago, Pittsburgh, and those large cities of Great Britain which contain some 80 percent of her population.

To this we may reasonably hope that their government, or their dictator in control of it, would reply as follows:

To such action we cannot possibly agree. We are engaged in a local aggression which you must win if you can, to give us possession of certain territories that we covet. But if you cannot win in that area you must give up and retire.

We prohibit any wider extension of the conflict and any violation of the existing agreements about bombing. For if we violate them, our opponents may well resort to all-out bombing a few hours or even a few minutes later. If their principal target should be our great cities, tens of millions will die and those who survive may die later from disease or starvation.

Even if the United Nations restrict their bombing to military targets, most of our biggest cities are liable to be attacked and many millions will certainly die.

Neither we nor our people can possibly contemplate such results.

If all our hopes of agreement fail, it is, of course, possible, although not probable, that all-out bombing on both sides may ultimately result. But if so, we shall at least take much longer to reach that last and fatal stage in the conflict than we should if we adhere to the present plan whereby, as soon as anyone is attacked, we use nuclear weapons when and where we please without, so far as the public is aware, any limitation or restriction.

All the information we possess is the somewhat alarming statement made by Field Marshal Bernard Montgomery in London in October 1954, and never since contradicted, that:

... we at SHAPE are basing all our operational planning on using atomic and thermonuclear weapons in our defense. With us it is no longer: 'They may possibly be used.' It is very definitely: 'They will be used if we are attacked.'

But this is almost a policy of despair, for it is becoming increasingly evident that massive retaliation equals mass-murder equals mass-suicide.

It seems urgently desirable, therefore, to replace the present crude policy of massive retaliation with strategic and tactical plans designed to deal effectively with the many different types of aggression that may arise in the future. It would be interesting to ask our "all or nothing" planners: "What precisely would be your proposed action if aggression, or heavy fighting, were to occur suddenly this year in Korea, the Formosa Strait, or Indochina?"

The Alternatives

Either aggression is not met with atom bombs, in which case aggression probably succeeds and the United Nations forces are quite likely to be defeated, or we let loose the hydrogen bombs and so destroy most of Great Britain and all of Europe!

Surely these are two very unsatisfactory alternatives?

To conclude, it must be admitted that although graduated is better than unlimited retaliation, it can only be a palliative for a situation that should never arise. Serious danger exists as soon as the United Nations go to war with any powerful aggressor, and we, therefore, should not forget the grim warning given to us by that great historian Arnold Toynbee. His *Study of History* contains the record of some 21 civilizations which mostly have

crumbled into dust. Our western civilization is now one of the few survivors and of this he says in his Volume 6:

If the analogy between our western civilization's modern history and other civilizations' 'Times of Troubles' does extend to points of chronology, then a western 'Time of Troubles' which appears to have begun sometime in the 16th century may be expected to find its end sometime in the 20th century; and this prospect may well make us tremble. . . .

We cannot say for certain that our doom is at hand; and yet we have no warrant for assuming that it is not; for that would be to assume that we are not as other men are; and any such assumption would be at variance with everything that we know about human nature either by looking around us or by introspection.

This dark doubt is a challenge which we cannot evade; and our destiny depends on our response.

It seems obvious that an adequate response would involve a detailed study of the entire problem by the peoples of the west, and an intensive effort—one might almost say a superhuman effort—to en-

sure that our civilization shall survive because it deserves to survive. There is little evidence of any such effort at the present time.

Millions of people are occupied clamoring for higher wages, demanding strikes, or complaining about the "differential" between themselves and other workers in the same or similar occupations. Many employers are no doubt being just as blind as their men. But surely they would all do better to consider the differential between their present standard of living (in most cases higher than ever before) and the Absolute Hell that they would descend to when the atom bombs begin to drop.

Failing success in our other efforts for ensuring permanent peace, we might do well to recall that in 1939 one of our bishops said something like this: "Our prophets today should be saying to all around them, 'Repent, for the Kingdom of Hell is at hand.'" He was right. Hitler let loose that Kingdom and, by a narrow margin, we survived. But next time there will be no certainty of survival, and we have no clear evidence that the general situation today is much more stable or secure than it was in 1939.

The Soviet Thrust Into the Antarctic

Translated and digested by the MILITARY REVIEW from an article by Doctor Bruno Maurach in "Wehrkunde" (Germany) April 1956.

DUE to its geographic proximity to the Soviet Union, the study of the Arctic by Soviet sailors, aviators, and scientists is of the greatest strategic and economic importance to the USSR. The permanent observation stations set up on gigantic, floating ice islands in the Arctic Ocean, equipped with the most modern meteorological instruments as well as radio and radar installations and serving as airbases, are indispensable to the Soviet military measures along their 7,000-kilometer northern coast. Utilizing the knowledge

gained in Arctic operations, the USSR is now exploring the Antarctic.

In view of the rapid developments in the fields of aviation, transportation, signal communication, and military technique, the south polar continent has acquired a considerable significance to the great powers. The southern polar regions, like the northern, not only present short communication routes but also constitute a bridge between continents, a bridge which, in the era of the jet bomber, the transportable atomic powerplant and the long-range guided mis-

sile could play a very special role in an eventual military clash.

However, it is not alone the geographic location of the Antarctic that draws attention of the interested powers. The Antarctic contains valuable mineral deposits whose mere presence, even though their exploitation at the present time is hindered by almost insurmountable difficulties, presents a sufficient allurements to cause the early announcement of claims to portions of this region and to emphasizing these claims by corresponding action.

On the basis of earlier expeditions, particularly those of the American Admiral Byrd who is now sojourning in this region for the fifth time as the leader of similar expeditions, it is believed that the Antarctic must not only contain vast quantities of coal, zinc, tin, silver, gold, copper, and molybdenum, but also immeasurable oil deposits—especially in Graham Land and in West Antarctica—and uranium. Both the Americans and the Russians are highly interested in the uranium.

The battle for supremacy between these two countries could be decided by which of them had at its disposal the largest and richest deposits of uranium. For this reason the Soviet Union cannot stand idly by while the other powers, with America in the lead, ensure themselves the possibility of exploiting extremely valuable mineral deposits in the still distant future.

The Geophysical Year

Regarded from this point of view, therefore, the preparations for the Third International Geophysical Year (1 July 1957 to 31 December 1958) which is to be devoted especially to the exploration of the Antarctic, reveal their particular importance. The Third International Geophysical Year (the first Geophysical Year lasted from 1882 to 1883 and the second from 1932 to 1933) is of especial importance to the USSR, for it enables her in the framework of an international explorational project to carry on studies which are of concern

from the political, economic, and the military point of view.

The USSR has scarcely had any contact with the Antarctic in the past. It was the Balto-German Admiral Fabian von Bellinghausen and Admiral Lazarev, in the course of an expeditionary journey in the years 1819-21 into the Antarctic regions, who first circumnavigated the southern



polar region on their frigates *Mirnyy* (the Peaceful) and *Vostok* (the East).

In this journey they discovered many islands situated off the coast of the Antarctic Continent and in a general sense first established the fact of the existence of this hitherto entirely unknown continent. It was these men who inscribed the first Russian names in the geographic maps by christening the islands, bays, and mountain ranges they discovered. After an adventurous voyage of 751 days the expedition returned to Kronshtadt on 24 July 1821. In the next 125 years not a ship un-

der the Czarist or Red flag was seen in the southern polar waters.

In 1946 a Soviet whaling fleet was occupied, for the first time in Russia's economic history, in whaling in the southern polar seas. Since that time the Soviet whaling fleet under the command of the whaler flagship *Slava* has been seen each year in the southern polar waters. The composition of this fleet, as well as the length of time it remains there and its long voyages which extend far beyond the whaling areas, allows the conclusion, with some degree of certainty, that in addition to whaling other intensive research activities are also carried out for the Moscow War Ministry. The Soviet Research Expedition to the Antarctic in connection with the coming International Geophysical Year, equipped with the necessary special equipment, will continue on a large scale the research carried out by the whaling vessels.

The more than 125 years of inactivity on the part of the Russians in the field of study of the southern polar regions did not signify a lack of interest of the Soviet Union in the problems deriving from the increasing significance of the Antarctic. The scientific expeditions sent to the Antarctic regions during this time were closely followed in Moscow and their findings carefully analyzed. The Soviet Foreign and War Ministries were keenly interested in the large American South Pole expeditions which were conducted in the years of 1928-30, 1933-35, 1939-41, and 1946-47 under the leadership of Admiral Byrd.

Russian Viewpoint

These American expeditions, according to the view of the Soviets, have served military purposes only, taking the stand that the possibilities of including the south polar regions in the American strategic plans were being examined. How firmly this view is adhered to in Moscow is shown by the fact that the Great Soviet Ency-

clopedia, in the lengthy chapter concerning the Antarctic, points out especially the great strategic significance of the Antarctic as an airbase on the shortest route between Africa, South America, and Australia. Among other things it asserts that the American south polar expeditions served only military and not scientific purposes. It further asserts that the principal mission of these American expeditions was to reconnoiter this region with the view to the possibility of utilizing it in the military operations of a future war.

In addition to this version concerning the allegedly principal aim of the American Antarctic exploration, the same thought is to be found in most published Soviet articles relative to the Antarctic. It is surprising how sharply, on the other hand, the Soviets react when military purposes are ascribed to them in their explorations of the south polar regions. This reveals Moscow's great sensitiveness, not to say irritability, at the possibility of a thwarting of her military plans and intentions.

For example, the *United States News and World Report* expressed itself with regard to the presence of the Soviet *Slava* whaling fleet in the Antarctic waters and the Soviet expedition to the Antarctic now being prepared, speaking of Moscow's "aggressive efforts" with respect to Australia and the Antarctic.

In an article of several columns and with appropriate, cutting caricature and concluded by mocking verses, the *Literaturnaya Gazeta*, under the heading of "Whales and Lies," sought to reduce the American press statements *ad absurdum*, presenting the Soviet Union as a peace-loving, progressive country and accusing the United States of aggression, war-mongery, and preparation for war.

Just as sensational, in this connection, is the Soviet assertion that England and America were only looking for suitable sites for hydrogen bomb tests in the Ant-

arctic. There radioactive clouds and ashes fallout could cause no harm. Uninvited observers could be disposed of easily. Perhaps, with the explosions of hydrogen bombs, ice-free zones could even be secured and, in this way, facilitate the exploring of wide areas.

Among the atomic physicists of the West, there has been a desire, for a long time, for "cold" atomic testing grounds, such as Russia has and to which the great progress of the Soviet atomic researchers is to be attributed.

Strategic Significance

While it is the Soviets alone who make these propagandistic assertions, the entire world press, including the Soviet, of late has occupied itself very emphatically with the strategic significance of the Antarctic Continent. Attention is called to the mineral wealth which could some day make a second Alaska of this inaccessible region (it is covered over vast portions of its surface with a layer of ice 600 feet thick).

Also, the largest and most modern war vessels of the United States are obliged to pass around Cape Horn, since they are unable to pass through the Panama Canal owing to their size. The fact is that the Panama Canal would be an extremely lucrative target for aviation or guided missiles in case of war, and would be of very problematical utility for naval traffic. The route from the Atlantic to the Pacific Ocean around Cape Horn will be controlled by the party who also has control of the corresponding portion of the Antarctic.

The Antarctic Continent possesses, moreover, significance as a potential area for submarine bases and airbases. Such a bridgehead in the extreme south would be difficult to capture, as the coast of the south polar continents consists of steep, inaccessible cliffs of ice which form a natural protective wall and because aircraft can only land in a few areas.

The Soviet Union, which is already making use of her northern polar regions as

testing ranges for her most modern weapons and has already included this region in her strategic planning for an eventual war, is planning to make use of the Antarctic for the same purposes. In view of the fact that the Soviet Union has at her disposal a very large fleet of submarines and a powerful, long-range air force, the strategic significance of the Antarctic is not affected by the enormous distances concerned. The Antarctic is separated from South America and Africa by a distance of about 2,500 miles, and from Australia by 1,900 miles.

The fear that the Soviet Union will pursue and realize these aims with characteristic inflexible tenacity is voiced in an article in the well-known American publication, *Fortune*. This article deals with the information which the United States icebreaker *Atka* brought back from a long voyage of exploration in the south polar waters last year. Speaking of the voyage itself, *Fortune* declares that the expedition was "in point of comprehensiveness and duration the greatest detective job ever undertaken."

The periodical further points out that:

The Atka Expedition was conducted in conformity with a resolution of the National Security Council, the highest and most important advisory body of the United States administration, with the support of the antespionage organization, the Central Intelligence Agency, and the Atomic Energy Commission.

In the highest administrative circles the melodramatically interesting theory is seriously considered that the Soviet Union is using, or has used, portions of the Antarctic as testing areas for atomic weapons or guided missiles. This suspicion comes from the unusual interest that the USSR has shown in the Antarctic since World War II and also from the favorable conditions which exist in these regions for the testing of mass destruction weapons.

The interest of the Soviet Union in the south polar regions is, in truth, "unusual." Great attention is given by the Soviets to the smallest details in connection with this region. We read in Buinitzki's work concerning the Antarctic (Moscow, 1954), among other things:

The presence of a layer of snow, the generally flat terrain, and the frequently observed increase in the temperature of the air with increase in elevation—instead of its decrease—create extremely unusual conditions in the Antarctic with regard to the propagation of sound in the atmosphere. With slightly increasing ground temperature and with freshly fallen snow, sound is not reflected from the surface of the ground, and there is, therefore, no echo produced at all. Under these conditions the sound of an explosion or of a rifle shot, which suddenly rings out in the absolute silence, is extremely short and loud.

Even though Russia has done nothing in the past concerning the active exploration of the Antarctic, the Soviet Government, rightly foreseeing that this region would play an important role in the future political, economic, and military activity of the powers, has consistently taken diplomatic measures to ensure itself a suitable position from which the battle for rights could be conducted.

Claims and Counterclaims

The Antarctic is the largest body of land on earth whose ownership has not yet been precisely established. At the other end of the earth, in the Arctic, it was possible to regulate the existing claims without great difficulty. The Arctic is surrounded by land on almost all sides, so that the division of the Arctic region could be effected by sectors whose baseline was formed by the coastline of the countries surrounding it. This principle cannot be followed in the south polar regions for the simple reason that the Antarctic is

bounded on all sides by the waters of the oceans, and the distances from the Antarctic coastal region to the nearest continents are so great that a division in accordance with the sector principle cannot be considered.

Yet seven countries—New Zealand, Australia, Chile, Argentina, France, Great Britain, and Norway—have announced their claims to large portions of the Antarctic. In general, these claims have been based on sectors extending from the respective coasts to the geographic pole. Those territorial demands constitute one of the objects of contention of the moment, and the English press has even spoken of the possibilities of a south polar "Faschoda." (This is a reference to the "Treaty of Faschoda" in 1899, by which France, who had been in a state of conflict with England, was forced to relinquish her claims to all the upper Nile Valley.)

England recognizes the claims of Australia, New Zealand, Norway, and France. England's military interests are mainly determined by the role which the Falkland Islands played in World Wars I and II and by the English explorational work in South Georgia (44 degrees west longitude, off the Falkland Island sector of the continent) on which the English Expedition has established itself.

The situation is complicated by Argentina and Chile's efforts to secure recognition of their claims to portions of this sector. A battle of diplomatic notes has been in progress for years between England, Argentina, and Chile, and has led to serious tensions more than once.

Argentina is not inclined to recognize the British rights of sovereignty over the Falkland Islands or the claims deriving from this to a sector of the Antarctic. She is seconded in this by Chile. Both countries take the stand that those sectors which extend from their most westerly and easterly points to the South Pole are their sovereign areas according to the sector

principle. They appeal, moreover, to decisions of the Pan-American Conferences against "European colonial bases in South American areas." With the establishment of bases and expeditional activities, both countries are repeatedly asserting their claims of sovereignty.

The USSR and the United States have hitherto made no territorial claims with respect to the Antarctic; neither do they recognize any of those of the other countries. The USSR, however, has expressly "reserved" sovereign rights on the Antarctic Continent over the enormous area which the Soviet Union asserts were circumnavigated in 1820 by the two Russian explorers Bellinghausen and Lazarev. This was asserted in a note to the Norwegian Government in 1939, 11 years after Norway had declared her sovereignty over the areas named by her.

The Soviet attitude toward the political aspects of the Antarctic is best reflected by the resolution adopted during the convention of the Geographic Society of the USSR in Moscow on 10 February 1949:

Any attempt at regulating the control of the Antarctic without the participation of the Soviet Union will receive no recognition. Problems which concern the Antarctic must, above all, be solved by those nations who have a historical right to collaborate in their solution. In spite of this, according to the world press, certain states are attempting to solve problems concerning the Antarctic without the collaboration of the USSR. No decision which concerns the Antarctic and which was reached without the participation of the USSR can attain legal status, and the Soviet Union has every reason for not accepting any such decision.

The official Soviet attitude to this question was clearly stated in a further note which the Soviet Government on 7 June 1950 handed to the governments of the United States, Great Britain, France,

Norway, Australia, Argentina, and New Zealand.

The note directly affirms that no decision that might be reached by the Western Powers with regard to the Antarctic without the participation of the Soviet Union would be recognized by the latter. The note further stated that the Soviet Union claimed the independent right to make decisions concerning the fate of the Antarctic regions discovered by her; that priority in the discovery of the southern continent belonged to Russia; and that the Antarctic waters belonged to the Soviet whalers. This point of view could not be accepted by the other powers since the Soviet Ministry of Fishing Industry had not begun whale fishing in these waters until 1946. This was the first Russian activity in the Antarctic since Bellinghausen's voyage of discovery 125 years previously.

The present great scientific expedition will afford the Soviet Union an opportunity to bring forward another point for establishing her right of participation in future conferences concerning the status in the Antarctic. In order to lend a propagandistic value to the principles voiced in the memorandum of the Soviet Government, every foreign press statement which shows a positive attitude toward Moscow's stand is reprinted for the Soviet public with appropriate comments.

In the London *Spectator* of February 1949 an article by the English journalist, Laurence Curwen, contained a very positive description of the first Russian Antarctic expedition under Admiral von Bellinghausen. Curwen wrote, among other things, that the expedition had been excellently prepared and that the Imperial Russian Admiralty had given the leader of the expedition extremely detailed instructions concerning the gathering of scientific data. The expedition was outstandingly fruitful. During the period from 1819 to 1821 Bellinghausen sailed through all of the Antarctic waters, on

the basis of which he was the first to establish the presence of land within the Antarctic Circle. His numerous discoveries place him among the most outstanding of the Antarctic pioneers, the splendor of his fame falling also on his native land.

In January 1821 he discovered an island which he named after Peter the Great and a short time later he discovered Alexander Land, named by him after Emperor Alexander I, which today belongs to the region claimed by England.

The Soviet press reacted to this article as follows:

We perceive that science recognizes Bellinghausen's and Lazarev's services to geography. It must not be forgotten, in this connection, and we particularly emphasize this point, that Russia, and now her legal successor, the USSR, claims her rights to certain of the Antarctic regions which belong to her by reason of first discovery. On the basis of the same right, France claims Adélie Land which, in his time, was discovered by Dumont d'Urville. Russia has never relinquished her rights and the Soviet Government has at no time granted permission for the exercise of any control over those regions discovered, in their days, by Russian navigators.

The Soviet Expedition

On 22 August 1955 Radio Moscow announced the decision of the Soviet Government to send an expedition for the purpose of the geophysical reconnaissance of the Antarctic Continent and waters of the south polar region.

According to *Izvestia*:

The expedition will be conducted by the Academy of Sciences of the USSR in connection with the Third Geophysical Year. Since the preparation of the work of scientific research in the Antarctic is attended with such extraordinary difficulties, the Soviet expedition will begin in November 1955 the work of reconnaissance and prep-

aration for the research stations in the Antarctic.

In view of the magnitude, importance, and difficulty of the task the Soviet expedition has been prepared and equipped in a large-scale and farsighted manner. The fact that the Soviet Union is for the first time engaging openly in scientific competition in the Antarctic, and the propagandistic effects to be expected from it, has caused the agencies concerned to hesitate at nothing to create conditions for success on the part of the Soviet scientists.

The "Main Administrative Office of the Northern Sea Route" has fitted out for this expedition the *Oby*, a 12,500-ton diesel-electric icebreaker; the slightly smaller *Lena*; and Refrigerator Number 7 as freight vessels. These vessels are of the most recent construction, the *Oby* being scarcely more than two years old. Both it and the *Lena* have given excellent service in the Arctic waters. After the vessels were given a general overhauling in the Riga shipyards, in the course of which a few modifications had to be made for the Antarctic conditions, they were fitted in the port of Königsberg (Kaliningrad) with the equipment necessary for the explorational and research work. The *Oby* put out to sea from Königsberg on 30 November 1955 and the *Lena* followed 15 days later on the long voyage to the Antarctic.

A great deal of care was exercised in the selection of the individual members of the expedition, most men participating having already had polar experience. The Soviet Union has at her disposal a large selection of men of this caliber, since the decades of explorational work in the Arctic has trained a great number of polar ship personnel in hard, practical work.

The leader of the expedition is the doctor of geographic sciences and hero of the Soviet Union, M. Somov, who has acquired his extensive, practical, and theoretical knowledge in many years with Arctic

explorational expeditions and, more recently, as leader of the floating research station *SP 2* (*severnnyy polyus*: North Pole).

His assistant is Professor Doctor Kort, Director of the Institute of Oceanic Science of the Soviet Academy of Sciences. Also collaborating are A. Gusev, doctor of mathematical-physics, who has won renown in the Soviet Union as a meteorologist-oroologist; and the well-known glaciologist, Markov.

The chief of the expedition's air detachment, which consists of four airplanes and two helicopters, is hero of the Soviet Union, Cherevichnyy, who likewise has had many years of experience as a flier in the Arctic region. The *Oby* is under the command of Captain Man who is very familiar with the command of vessels in polar regions. The *Lena* is commanded by Captain Vetrov who traveled on the *Liedke*, the first vessel to make the East-West voyage over the Northern Sea Route. The whole Soviet expedition comprises 350 men inclusive of the crews of the *Oby* and *Lena*.

Missions and Means

The missions assigned to the Soviet Antarctic expedition may be divided into two groups. To the one, the so-called "oceanographic group," belongs the assignment fields of: hydrology, aerometeorology, hydrochemistry, geology, hydrobiology, geophysics, and oceanography. The research work of this group will be conducted from aboard the *Oby* which will make four major research voyages during the period of the Geophysical Year. The first voyage during 1956 extended from the Baltic to the Antarctic and back. On the return voyage a detour by way of the Arctic Ocean to the north of Spitzbergen and Franz Josef's Land was made.

On the second voyage (October 1956 to May 1957) the *Oby* will again establish contact with the Antarctic Continent with

supplies for the Soviet scientists there. The return voyage will lead across the South Pacific to Vladivostok; and from there through the Northern Sea passage to the Baltic, and to Leningrad.

The third voyage of the *Oby* in October 1957 will again extend into the waters of the Antarctic and back to Leningrad. After a general overhauling the *Oby* will begin her fourth voyage to pick up the Soviet scientists after the completion of their assignments. During these extended voyages the research work planned for the field of oceanography of the Antarctic Expedition will be carried on.

For the other group, which will explore the area of the Antarctic Continent assigned to the Soviet Union during the Paris conference for the preparation of the Geophysical Year, a main coastal station and two additional explorational stations will be established. The main coastal station, "Mirnyy" is located on Knox Coast on the 105th meridian of east longitude. The "Mirnyy" station comprises 20 small units which serve as living quarters, laboratories, and as a power and radio station.

The first of the research stations "Vostok" is to be established 600 miles from the main coastal station in the area of the south magnetic pole (78.3 degrees south latitude and 107 degrees east longitude).

The second research station, "Sovetskaya," will be established at 82 degrees south latitude and 63 degrees east longitude.

In the area of these three stations, geographic, meteorological, biological, glaciological, geophysical, and actinometric research will be carried out. In addition to this, acoustic depth-soundings will be used to determine whether the ice masses conceal a continuous land area or whether individual islands are joined together in the form of a single mass by the layer of ice.

It is likewise planned to take aerial

photographs of the region between the three stations and of the coastal region east and west of "Mirnyy." Special attention will be given to searching for valuable minerals, utilizing the most recent methods of aerial exploration.

The leaders of the expedition hope, in the course of the present year, to complete the installation of the three stations in order to be able to begin the actual research work. The scientists have the most modern equipment at their disposal, in addition to caterpillar vehicles, tractors, and dog sleds. Traffic between the stations will be by air.

Conclusions

The financial outlay with which the Soviet Expedition was fitted out, and the broad framework of the objectives assigned

the Soviet scientists, permit the certain conclusion that the Soviet Union will by no means allow the matter to rest with the results obtained by the end of the Geophysical Year, but will, like her principal rivals, the United States and England, continue to maintain research stations in the Antarctic.

Scientific research and strategic reconnaissance on a global scale—these are the aims of the Antarctic Expeditions. The Soviet Union is attempting also to wipe out the lead of the Western Powers and to create conditions for ensuring, when the time is ripe, a legal title to parts of Antarctic Continent *de jure*. Back of the zeal for discovery and research of the men participating in this expedition stands international rivalry with its hunger for power and craving for prestige.

The Principal Weapon

Digested by the MILITARY REVIEW from a copyrighted article by Major J. H. P. Curtis in "The Journal of the Royal Artillery" (Great Britain) October 1956.

Missile weapons are now become the principal ones; it is by fire and not by shock that battles are won today. . . . In the open field as in siege warfare the gun plays the chief part; it has effected a complete revolution. It is with artillery that war is made.

—Napoleon 1809

NAPOLEON'S words, written nearly 150 years ago after his defeat on L  bau Island, are strikingly relevant today. Recently they have been echoed by the Commander in Chief of the NATO Northern Army Group who is reported as saying that the tactical atomic missile is now the primary weapon for the defense of Western Europe, and that armor and infantry are the supporting arms.

The revolution to which Napoleon was

referring was brought about by the invention of the explosive shell which was then just beginning to supplement the cannon ball and grape shot. The effect on the massed infantry and cavalry tactics of his day was indeed revolutionary, and Wellington's reverse slope position at Waterloo was one of many tactical concessions which were to lead ultimately to the trenches and wire of the First World War.

The Present

Today, atomic heavy guns and ground-to-ground ballistic or guided missiles are already an integral part of the NATO forces in Western Europe. These weapons are the harbingers of a revolution in military organization and tactics, the extent of which it is as yet hard to foretell. We are only just beginning to grasp the ef-

fects of the powerful weapons that are already available. The weapons of the future are still wrapped in the secret mists of nuclear science.

So far, however, the advent of nuclear weapons has had no very marked effect on the tactics, and even less on the organizations, of our field formations. It is true that the "grand tactics," if we may refer thus to the maneuvering of a corps, have changed.

In defense a wide deployment has become essential to avoid presenting an atomic target. Where the balance lies, however, between adequate dispersion and cohesive defense no one has yet discovered. In the attack it is now fashionable to carry out advances against hitherto impossible long odds, relying on atomic bombardment and a rapid concentration to carry the day. Such attacks are capable of producing a tremendous shock in the selected sector, but it is becoming painfully obvious that the armored division, with or without an attendant infantry brigade, is not the ideal force with which to exploit an atomic strike against an enemy who is capable of atomic retaliation. The great mass of echelons, guns, motorized infantry, headquarters, and supply columns, numbering some 2,500 vehicles in all, is becoming increasingly vulnerable as the number and diversity of atomic weapons increases.

The recent organizational changes in the British Army of the Rhine amount to little more than a regrouping of the available forces to suit the new doctrine of dispersion. The armored division has lost a brigade of infantry and the infantry division has gained a brigade's worth of tanks. That broadly is the outcome of four years of atomic trials. These "new" organizations were all used in the last war with varying degrees of success. Doubtless a warm controversy will rage for some time to come on the desirability of allotting armor to the infantry divisions, thus

raising a smokescreen which will effectively conceal the main issue. For when we examine the future in even the most tentative manner, it becomes clear that *neither the old nor the new organizations are suitable for atomic warfare.*

However, we are unlikely to see any further major changes so long as the available atomic weapons are few in number, widely devastating in their effect, and, therefore, controlled essentially at a high level. A 20-kiloton missile controlled by corps cannot be used to aid a hard-pressed infantry and armored position the forward localities of which have already been overrun. In the attack, once the carefully prepared bombardment has been discharged, it cannot be used to reduce a strong point which is holding up the advance. This is why we still find at the lower levels the same array of conventional weapons and the fighting units using the formulas, both tactical and organizational, which have long been familiar.

The Future

The stage has been reached when we possess thermonuclear and nuclear weapons with global range for use strategically. For "grand tactical" use we have the guided missile with a range of 75 miles. At the tactical level we have only our conventional weapons, now becoming rapidly obsolescent. Atomic shells can already be fired from a 210-mm heavy gun: surely the next step must be the production of a smaller shell which can be fired from a 155-mm field gun.

Recent press reports indicate that the Americans are already well advanced toward the inclusion of some such weapon into a divisional organization. We may lag behind the Americans in the development of atomic weapons, but there is no reason why we should not be ahead of them in tactical thought. It is not too soon, therefore, to speculate on the type of mis-

sile that may shortly be produced and the result that its introduction will have on the tactics and organization of the army.

Atomic Shell

Let us assume, therefore, that we shall shortly have a shell that is capable of destroying everything, either physically or morally, within a radius of 500 yards and yet having a danger area of only 1,500 yards. This shell can be fired from a 155-mm self-propelled gun giving a maximum range of, say, 15,000 yards. Within the limits of safety this shell can be directed by a forward observer from an observation post either dug in or in an armored vehicle.

Let us also assume a 25-round per gun first line holding of these small atomic shells. At a density of one gun per two to three miles of front, for that is all that will be necessary, the total requirement for an army will not be so great as anyone thinking in terms of high-explosive shells might at first suppose.

It is arguable, of course, that the provision of atomic shells on this scale is beyond the powers of Great Britain or the United States, either through lack of funds, fission material, or productive capacity. The answer is likely to remain a well-guarded secret for some time to come. We can only remind ourselves that 12 years ago the contention that atomic heavy artillery would be available within 10 years would have been greeted with derision. The atom bomb was then a possibility known only to a few.

It is worth noting, moreover, that the cost of producing low-yield atomic shells will be offset to a considerable extent by the economy they will allow in conventional weapons and manpower. Also, should the politicians be so bold as to declare that war will be no more, the fissionable material can be extracted from the stockpile of atomic shells and put to work in atomic power stations—a really

profitable example of turning swords into ploughshares.

Having armed ourselves with this small atomic shell, let us first examine the tactical effect that it is likely to have on the battlefield, before going on to review the type of organization that we shall require.

Tactical Effect

First and foremost the atomic field gun shell will deal a shattering blow to the conventional methods of defense. A company position dug in on an area of vital ground will merit an atomic shell and only the deepest dugouts or cellars will save the defenders from destruction. Even so, with the sentries and aboveground weapons and tanks blasted and charred beyond recognition, and the unseen menace of gamma radiation all around them, it is inconceivable that the survivors of an atomic shellburst will be capable, either physically or morally, of serious resistance. If, in the event, this assessment is proved wrong, a second shell on the same spot must surely seal their fate.

The deduction to be drawn then is that any form of defense which depends on fixed defenses will be useless since it will merely provide the enemy with targets for his atomic shells, either large or small. Moreover, if tactical dispersion is carried to a degree which makes the use of even the smallest atomic shell unprofitable, the resulting layout will be a line of disconnected posts the defensive power of which will be negligible.

The contention that a fixed defensive position will in the future merely provide so much "atom fodder" is one that will be hotly disputed for a long time to come. Many powerful arguments will be raised against it.

The generals will say that ground must be held for strategic or political reason. With our present type of organization that can only mean fixed defenses. "Hold" is, however, a strong word to the infantry-

man: it means dig in and, if necessary, die to the last man. But in the next war there will be no last men; the defenders of a position will all die together under the single cataclysmic blast of an atomic shell.

Others, safe in the knowledge that in peacetime they cannot be disproved, will recall the great bombardments of the Somme and Cassino as examples of the resilience of well-led soldiers, and will maintain that atomic shells will be withstood in the same way. They will be supported partially by the data resulting from tests made against dummy positions in the Nevada desert.

There are people who play down the effect of an atomic burst because they feel unconsciously that if it is recognized as being all-powerful, all constructive military thought must come to an end. And, finally, there is the infantryman himself who for the past 50 years depended for survival on his boots, his shovel, his own weapons, and his guts. To tell him now that a prepared defensive position will be untenable in the face of atomic attack is like telling an old-age pensioner that the house he has lived in since childhood has been condemned by the local council. Like the pensioner, the infantryman will not believe it.

Many arguments then will be produced to show that an atomic shell is not all-conquering in itself. But in spite of all these, the atomic field gun shell will be a weapon of such tremendous power that it is certain to dominate the tactical battlefield both in attack and defense. In the past the rifle, the machinegun, and the tank have each in their turn been the dominant weapon. During each of these phases the gun has been there, powerful but not all-powerful once the need to disperse and dig had been accepted. If the field gun and its shell become the principal weapon, then infantry and armor must be organized to support it instead of vice versa. This reversal of

roles has already taken place in "grand tactics" as General Sir Richard N. Gale has pointed out: the revolution will be repeated shortly at the lowest tactical level. At all levels, therefore, from the strategic to the tactical, the battle will become a duel of atomic weapons in which the overriding principle will be first to locate the target and then to destroy it with atomic fire.

We must now attempt to discern how this gun duel is to be fought at the lowest level and what supporting arms our atomic field artillery will require.

Mobile Gun Battle

In the past the artillery task has been to protect the infantry positions with defensive fire and in the attack to neutralize the enemy positions sufficiently to allow the infantry to close with them. In both cases it was the infantry's task, assisted by tanks, to secure the final destruction of the attackers or the defenders and a considerable degree of concentration was essential for the achievement of this aim. In the future, when concentration in attack or defense will be disastrous, it will be with the gun that we must seek to destroy the enemy.

In defense the task of the infantry and armor will be to secure the observation posts from which the atomic fire can be applied; offer sufficient resistance to force the enemy to provide targets for the atomic shells; and by fighting reconnaissance to assist in the location of suitable targets. In the attack the infantry and armor will mop up and occupy the ground devastated by the atomic fire thus enabling the forward observers and the guns to advance and continue their work of destruction.

All this must be achieved without at the same time presenting a target for the enemy's counterfire. Only by a blend of dispersion and concealment will this be possible, and only complete tactical mobility will make it effective. By day the maxi-

mum that can be deployed in one area may be a troop of armor or a platoon of infantry; even these may be wise to move once they have been located. By night it will be safe to concentrate a company at an important point, but by morning it must have been replaced by a forward observer and a troop of armor if it is to avoid destruction.

Under these conditions it is obvious that ground cannot be held in the true sense of the word, but it can be denied very effectively. Denying ground can be defined as "selling ground dearly" and the atomic armory will ensure that the price to be paid will be very high, if indeed any ground is lost at all. The better the observation, the more effective the obstacle that is being covered, the more difficult will it be for the enemy to advance without offering a target worthy of a small atomic shell. With the scale of shells envisaged an infantry company or a squadron of tanks threatening the observation line will merit atomic fire: anything smaller will be dealt with effectively by conventional means. It is thus that we shall be able to get away from the holding of ground for ground's sake and devote our energies entirely to the true aim of all warfare, that is the destruction of the enemy.

This mobile gun battle will require tactics very similar to those employed by the "Jock" columns in the Western Desert in 1941-42, when for long periods wide frontages were dominated by mobile 25-pounder batteries supported by armored cars and motorized infantry. These columns were comparatively ineffective when opposed by strong enemy forces: the future equivalent of the "Jock" column will have a hitting power many times greater than its desert predecessor and the enemy will not be able to concentrate against it. The "Jock" column was a child of the desert war, but it was also born of the necessity to economize in force and logistical effort. Both these principles will be forced upon us in an atomic war.

Tactical Organization

What then will be the shape of the atomic battle group of the future? That it will have as its nucleus a battery capable of firing atomic shells is certain. This battery need consist of no more than two guns, each of which will carry in its limbers a destructive force far exceeding that previously carried by an artillery group. The fire unit can be a single gun and this offers the advantages of flexibility and concealment, two virtues on which survival in a nuclear gun-duel will largely depend.

To provide observation and fire control along the wide frontage that we shall shortly be considering, a battery will require at least four forward observers. Moreover, so vital will be their task and so continuous the need for alertness, that a further two forward observers per battery will not be overlavish as a reserve. This is a point that must be remembered in the scramble to modify organizations which will follow the introduction of the atomic field gun shell.

It is not necessary here to go further into the labyrinths of what the future field battery will or will not require. Survey and meteorological equipment, radar scanners, perhaps even a nuclear physicist or two—only time will tell. Meanwhile, we must be content to assume a small highly mobile unit capable of dominating with atomic fire an area of some 30 square miles. Self-contained for atomic ammunition, with rations for 10 days, and capable of at least 200 miles without refueling, the artillery battery of the future will be the most powerful unit on the battlefield.

By day the ideal unit for securing the observation line for the forward observers will be an armored car squadron, supplemented if necessary by infantry standing patrols. A squadron as organized today can observe five miles of frontage in European terrain adequately and since this frontage also can be covered by a two-gun battery using individual gun positions, we may

take this distance as being the normal task which the group will be called upon to cover. Mounting high-velocity guns and machineguns, supported by a heavy troop equipped with antitank weapons of the guided missile variety and with its powers of observation increased by organic light aircraft or helicopters, such a squadron will be capable of establishing a protected area within which the forward observers will operate in daylight.

By night two infantry companies will be required to establish a chain of mobile, wireless equipped standing patrols along the line of a good obstacle. In close country or where no good obstacle exists, more than two companies may be necessary. Or, as was done in the desert, contact may have to be broken at last light and the entire group withdrawn some five or six miles in order to prevent infiltration. On such occasions the armored cars would advance to regain contact at first light the following morning and any enemy who had followed-up during the night would be engaged, if necessary with atomic fire. Infiltration at night will be the biggest problem for the defense and one that will require new techniques if it is to be overcome. Keeping the enemy at a good distance by day, firing ground-burst atomic shells at last light on selected lines of approach, or the quick withdrawal of the patrol line and the calling down of atomic defensive fires are some of the possibilities which suggest themselves.

The infantry must be tactically mounted in organic vehicles to obtain the degree of mobility and flexibility that will be essential in this type of warfare. Only thus can they obtain the range and endurance needed if the artillery is to be adequately supported. The need for greatly increased wireless communications also points the need for vehicles for the infantry. To have it otherwise would be like supporting the present armored regiment with a battery of horse-drawn guns. Today, the infantry

battalion has over 100 vehicles and yet every man in the infantry companies has to march. Shorn of the need for the clutter of supporting weapons a battalion could be made completely mobile with less than 100 vehicles. Two mobile companies, numbering together only 30 vehicles, would provide no problem of concealment or road movement on a frontage of five miles.

Future of the Tank

It is, of course, arguable that medium and heavy tanks will be far more effective in defense, and a more powerful followup force in the attack. However, the logistical backing required by such tanks is so great that it may well become impossible to maintain them on the battlefield in the face of atomic interdiction at all levels. In the past we have relied on the big tank to provide tactical domination of the mobile battlefield. In the future the hitting power of 50 tanks will fade in comparison with that of an atomic battery, while the logistical backing required bears no comparison at all. The modern armored car has a hitting power equivalent to that of the cruiser tank of 10 years ago. Its slightly lower cross-country performance is more than compensated by the ease with which it can be put across river obstacles and over small country bridges. Its speed, silence, and endurance are all superior to the tank and it is these virtues that will be of the most value in an atomic battle: they will all be sacrificed to a certain extent if we insist on a tracked armored fighting vehicle, however light it may be.

Atomic Battle Group

It seems, therefore, that the type of battle group that will be most effective in the future will be a close knit unit consisting of one atomic artillery battery, one squadron of armored cars, and two mobile infantry companies. Commanded by a lieutenant colonel from a small headquarters, with an engineer platoon and rafting equipment, and having a small administrative

echelon, such a unit will be formidable indeed. It will dominate a front of five miles—in the past the area allotted to two brigades—and will be capable of 10 days and 200 miles of independent action. A series of such groups, supported in depth by atomic missiles with a range of 75 miles and operating against a background of strategic air bombardment, would be more than a match for any combination of the cumbersome field formations of the present day.

Conclusion

When gunpowder made the ancient castles untenable, their inmates took to the open fields for battle. Will the advent of small atomic shells have the same effect and force us to leave our trenches and rely instead on a war of movement dominated

by the artillery arm? When these missiles are available, and it must only be a matter of time before they are, will the type of battle group outlined above be the right answer? Has the tank, which has grown steadily bigger and less mobile with the years, reached the end of its useful life in this age of immense destructive power and far-reaching interdiction of the administrative chain? Will the tank, like the armored knight of old when opposed by more powerful missile weapons, have to give way to a lighter and more mobile fighting machine?

These are the tactical problems with which we must grapple during the second decade of the atomic era when the field gun enters the atomic arena and on the battlefield its shell becomes the principal weapon.

In the Twilight of "Peaceful Coexistence"

Digested by the MILITARY REVIEW from an article by Willy Bretscher in "Swiss Review of World Affairs" (Switzerland) December 1955.

THE conflict between East and West, the struggle between communism and the free world, is *the* problem of our time, overshadowing all other problems. From the point of view of world history the world-wide struggle between the rule of tyranny and the forces of freedom constitutes the physiognomy of our time and the very future of mankind may depend on the outcome of this struggle.

A number of changes have taken place recently in the world-political situation and among the leaders of the cold war. It is important to register these changes, to examine their scope and significance, and to draw the correct conclusions. It is necessary, above all, to distinguish between appearance and reality. In other words, we must examine whether the changes involve the conflict as such, or its external forms only.

Nature of the Conflict

The partition of the world is a result not only of a political conflict between East and West, but also of the ideological conflict between communism and the free world; and the political and the ideological conflicts are inseparably interwoven. Any view focusing exclusively either on the political or on the ideological character of the conflict fails to understand its nature as a whole.

This assertion is best clarified by two hypothetical assumptions.

First, had a *non-Communist* Russia won the Second World War fighting with the West against Germany, and, as a result of her military conquests, changed her borders with Europe, the controversy among the victors would be a political question which could probably be tackled and solved by the classical means of di-

plomacy,' even though with difficulty and friction.

On the other hand, if the Soviet Union were not a Communist state, the dispute with communism as a social doctrine and as a revolutionary party would be an internal question for the individual nations comparable to the issue of socialism in the last and first decades of the 19th and 20th century.

In reality, however, the situation is quite different.

The USSR is a big power with a tradition of Imperialist aspirations and the champion, at the same time, of a social doctrine and secular religion aiming at world revolution.

When, at the conclusion of World War I, the small Socialist sect of the Bolsheviks conquered the Russian state, they proceeded on the basis of Marxist teachings as interpreted by Lenin to evolve a doctrine or religion in which Russian nationalism and anti-Western Pan-Slavism are converging in the idea of world revolution brought about by the proletariat. In bolshevism the state has found the totalitarian *Weltanschauung* which justifies its "natural" will to expansion as the inevitable fulfillment of historical and social laws. Quite logically, this state supports the Communist movements in the individual countries in their efforts to seize power and bring about the world revolution. Just as logically, the Moscow-controlled Communist movements in the individual countries are ready to be used at any time as auxiliaries of Soviet policy.

Because the USSR acts as the protective power, so to say, of world communism, the Communist movements in the Western countries are not parties in the usual meaning of the term. They do not compete with other parties within the same nation and within the framework of that nation's interests, but constitute what may be described as a fifth column. In this capacity they are supported by Soviet policy

and, while they in their turn support that policy, they attempt to bring about the overthrow of the existing order so that they, a minority, may seize the power which they cannot acquire by constitutional means. The weight of the USSR serves them as a lever for the establishment of the Communist dictatorship, as is shown by the example of the Eastern European nations occupied by, or lying within the grasp of, the Red Army after the war. Equally, in the "German Democratic Republic" the Communist regime is kept in force solely by the bayonets of the Soviet forces.

The picture becomes still clearer when we view the Communist empire in the East as a kind of church established in the USSR and identical with it. As a church state and as a state church this Communist regime fights on the military, political, and ideological fronts, supporting its faithful in the not-yet Communist countries and, at the same time, making them work for it. In this respect a comparison with Islam, the religion that warred against Christian Europe for centuries, urges itself upon the observer.

The aim of Soviet Russia and Soviet communism is the expansion of the present Communist world empire into complete world domination. For the achievement of this aim practically all means are employed. Depending on the situation, they range from brutal military attack (Korea), through the devious political weapons of the cold war (propaganda, conspiracy, and subversion), to the finer arts of diplomacy, all of them combined and adjusted to achieve a maximum effect.

Dangers and Counteractions

The threat to the free world thus appears to be threefold.

The West is threatened, first, by the present political and military power of the Soviet empire which, together with its Eastern European satellites, strives for

supremacy in Europe. This threat is intensified by the influence of the Moscow-Peiping axis upon developments and events in Asia.

The West is threatened, second, by the spread of communism as promoted by Moscow in all countries and continents. Communist propaganda aims at winning those countries, in particular, which at present are still outsiders both to the West and the East bloc. It is particularly active also in the colonial countries where it allies itself with Nationalist passions.

The West is threatened, third, and finally, by the subversive activity of the Communist Parties in the democratic states which embraces open propaganda and all forms of boring-from-within, as well as sabotage and espionage.

These different threats call for different countermeasures.

The military threat from the Eastern bloc must be met by a corresponding rearmament of the West, strong enough to deter Moscow from direct or indirect aggression.

The danger of the spreading of communism must be fought by a policy designed to prove the practical superiority of a democratic order and of a free economy. This purpose will be served by appropriate economic and social measures in the individual nations, by increased international cooperation in the free world, and, last but not least, by an enlightened policy toward the underdeveloped countries, enabling them to introduce reforms and bring about improved living standards.

The subversive activity of the Communist fifth column demands measures for the protection of the state, which, where it proves necessary, limit the freedom of those groups and parties which want to use freedom only to destroy it.

All these countermeasures are necessary in the same degree and at one and the same time. The issue is not a question of alternatives, but of diverse actions

which add up to a whole. To concentrate attention upon Russian armament, and to believe that a corresponding counterarmament of the West would suffice to banish the danger, is as much a mistake as to believe that Communist imperialism can be fought with social reforms alone. The defense of the West will be successful only if it meets communism in all its three manifestations—as an Imperialist big power, as a social doctrine of salvation, and as a revolutionary movement—simultaneously and with the means appropriate to the particular threat involved. It would be worse than useless to fight successfully on one or two fronts while the enemy breaks through on the third.

Stalin's Successors

What of the possibility of that "peaceful coexistence" of which there has been so much talk lately?

The new situation, characterized by a relaxation of international political tension, is the result of certain changes that have occurred in the attitude of Soviet Russia since Stalin's death. Some indications exist that Stalin himself had begun to consider a change of policy. In an essay in *Bolshevik*, his political testament, he asserts that the differences of opinion and conflicts of interests among the Capitalist nations are bigger and more important than the conflicts between those nations as a whole and the Soviet Union. Considering that by such allegedly "objective" analyses of a given situation a Communist leader usually tries to justify a policy he is either applying or planning to apply, Stalin's assertion rather clearly seems to indicate an intention of emphasizing, fostering, and exploiting the differences existing between the states of the West.

No one is in a position to answer the academic question whether Stalin himself would have carried out a change in foreign policy had he lived. In any event, a change which in no way contradicts Stalin's thesis

and recipe has taken place since his death. The new turn in foreign policy is accompanied by certain modifications of domestic policy which, in a system as rigid as that of Soviet Russia, must appear striking even when they are not very substantial, or when it is impossible to say to what extent they are modifications on paper only. One may well assume that all these changes are related both in cause and in time to the death of the man who virtually was Russia's sole ruler.

Stalin was a dictator—and more than a dictator, he was a myth. But the new government that had to take his place, because there was no single person suited for the apostolic succession, is only a government—a government still entangled in internal rivalries, as the fall and execution of Beria and the deposition of Malenkov as Minister President show.

This government does not possess that maximum of ideological and political authority that had been built up for himself by the creator and representative of Stalinism in an allegedly logical continuation of the teachings of Marx and Lenin. It has yet to acquire such authority; it needs time to consolidate its position and to smooth or resolve the conflicts among the rival forces of which it is itself a product. Thus the new collective leadership, in theory and in practice, follows the traditions established in Soviet Russia. For a number of reasons it is forced to apply a more cautious and more flexible method both in foreign and in domestic policy in order to diminish the danger of a potential crisis.

Beyond this explanation many interesting speculations can be engaged in regarding the concrete reasons that may be responsible for the changes in Russian policy.

Some observers point to the difficulties Russia is having as a result of the armaments race, or to the Russian people's fear of war (so much promoted under Stalin by a constant reference to the West's "aggressive intentions"). Others point to the

emergence of the new power of China, with her constantly increasing population on the Russian borders in Asia. Still others believe, or assert somewhat rashly, that a structural change of the Soviet regime after the death of the dictator is not only possible but already in progress. All these explanations can be supported by specific facts and arguments. Since, however, the walls of the Kremlin are impenetrable, it is quite impossible to know whether the thinking processes of these Western explorers of the world-political depths are in any way duplicated in the heads of the makers of Russian policy. Caution demands that we stick to the tangible facts and leave the testing of interesting theories to the future.

"Relaxation"—But No Solutions

One such tangible fact is the Soviet's new "policy of relaxation" in international relations. It has been given really sensational expression in events like the withdrawal of the Russian occupation forces from Austria, Bulganin's and Khrushchev's penitential visit to Belgrade, the Geneva Big Four Conference, and the invitation of Chancellor Adenauer to Moscow. This Russian policy of relaxation also includes the new style of smiling in international intercourse, the propaganda for "peaceful coexistence," and the sudden, urgent need felt in Moscow to establish contact between East and West.

One cannot help having the impression that the USSR is now waging a policy of relaxation in much the same massive way in which she used to wage the cold war under Premier Stalin, and that the relaxation aimed at is not an end in itself, but just another means to strengthen her position. It seems safe to assume that, while the change in foreign policy is a result of necessity, it included from the beginning those elements of calculation which have recently become more and more evident in Moscow's pronouncements and gestures.

The Soviets' changed attitude has, indeed, led to a relaxation of international tension and created a "new climate" which is welcome insofar as it means the return to diplomacy in the East-West conflict, making negotiation possible again. The Soviets' eagerness to negotiate has been reciprocated by the West so that the external prerequisites, at least, have been established for new attempts at a solution of the great pending questions.

We cannot, however, overlook the fact that the new climate, while smoothing the surface of international relations, has had no effect as yet in the deeper layers of the political and ideological conflict. A survey of the present situation makes it evident that no solution is in sight as yet for any of the great problems that constitute the East-West conflict.

Actually, it cannot be doubted that even in the era of relaxation Soviet Russia continues to insist on the defense of her military, political, and ideological conquests. In fact, she uses her policy of relaxation for the very purpose of affirming and securing the *status quo*. With the tremendous expansion of the USSR sphere of influence in Eastern Europe, the cold war has given the Soviets everything it could give them. But it also gave rise to a defensive reaction in the West.

It gave rise to the Truman Doctrine, the Atlantic Alliance, and the Treaties of Paris which put a categorical halt to the Soviet Communist drive for expansion and hegemony in Europe. The present Soviet Government, unwilling to risk or accept a turning of the cold into a hot war with all its unforeseeable risks, bows to the new situation created by the establishment of a Western system of alliances by declaring the cold war ended and striving for a normalization of international relations. With undeniable shrewdness the Soviet peace offensive aims at persuading the West to accept and recognize the *status quo*. It also aims at reducing, in-

deed dissolving, the cohesion of the Western system of alliances and at bringing about the withdrawal of the British and American armed forces from the Continent.

This view is not contradicted, but confirmed, by the few tangible gestures the Russians have so far added to their friendly words and smiles. The conclusion of the treaty with Austria and the neutralization of that country constitute an improvement in the Soviet strategic position and give an impetus to propaganda against the Atlantic Alliance and the Treaties of Paris, and to the spread of neutralism in Western Germany and other nations. The return of Porkkala to the Finns was promptly followed by Bulganin's declaring that "other states," too, might make a "contribution to international relaxation by the liquidation of their military bases on foreign soil"—by demanding, that is, that the West, in response to the Soviets' abandonment of a strategic position of rather limited importance, should begin to liquidate its defensive system.

A Challenge

The Western statesmen will hardly be deceived about the true background of the new Russian policy (although they themselves occasionally promote the deception of public opinion by their rhetorical invocations of the "spirit of Geneva"). President Eisenhower, in any event, had that background in mind when he declared:

There can be no true peace which involves acceptance of a status quo in which we find injustice to many nations, repression of human beings on a gigantic scale, and with constructive effort paralyzed in many areas by fear.

This declaration by the President of the United States has quite the same meaning as the resolution of a recent congress of the World Liberal Union at Lucerne.

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It warns against seeking relaxation in international relations at the expense of the basic principles of freedom and justice—against writing off politically, and betraying morally, the nations of Central and Eastern Europe. To the Russian demand of a “liquidation of military bases on foreign soil,” and the Russian efforts for a weakening and eventual dissolution of the Western alliances, the free world can have but one realistic answer: It is that very association of the free peoples in a common defense system that has created a certain balance of power, a situation which caused Stalin’s successors to effect a change in their foreign policy. It follows that the preservation of the unity and the strength of the West is actually a prerequisite for the continuation of the relaxation of international tension.

Particular vigilance is called for with respect to the ambiguous slogan of “peaceful coexistence.” Insofar as this slogan, invented by Soviet propaganda, means that a side-by-side existence of the ideologically contradictory systems of the free West and the totalitarian East is possible in practice, it says nothing new. Actually, Soviet Russia and the so-called Capitalist world have coexisted more or less peacefully—that is, without getting involved in a major conflict of ideological origin—for nearly 40 years.

The most zealous users of the slogan, however, want to make us believe that communism is capable of moderating, if not wholly overcoming, its inherent aggressive mentality. It is on this point that the West must not allow itself to be lulled to sleep. Even if a reduction of the external tension between the two systems appears possible, their inner, imminent conflict remains insoluble, and we must familiarize ourselves with the thought that the cold war will continue in partly new, perhaps more subtle, and, therefore, more dangerous forms. Nikita S. Khrushchev

confirmed this fact when he declared at a reception of the East German Government heads in the Kremlin on 18 September.

If someone should interpret our smile to imply an abandonment of the teachings of Marx, Engels, and Lenin, he would be deceiving himself most cruelly. . . . Socialism will eventually be victorious. To this end we need not wage any war. Peaceful competition is enough. We shall see who is right.

With its explicit reference to party dogma Khrushchev’s declaration shows that the Communist totalitarian claim continues unchanged, that the Russians believe they have history’s timetable in their pockets, and that the train of world revolution, despite some minor accidents and delays, will ultimately arrive at its appointed destination.

We, in our turn, are convinced that the West need not fear a really “peaceful competition” of the two systems. Wherever the peoples are free to decide their own destiny, they will always decide for freedom and against the Communist tyranny. But this “peaceful competition” as understood by Khrushchev will in all probability—with or without a Cominform—include a continuation of the conspirational activities of the Communist Parties in the Western Nations.

The way in which the Communists exploit the relaxation of international tension for their purposes has become evident. Under the flag of the “Popular Front” they revive the infiltration tactics they so successfully applied in the 1930’s in some countries of Europe. Camouflaged as fighters for peace and advocates of relaxation, the Communists attempt everywhere to creep back into the national community from which they excluded themselves by their antinational aims and policies.

It is imperative to recognize this situation and its dangers in time. The free peo-

ples would be the victims of a very "cruel self-deception," indeed, if they allowed themselves to be persuaded that communism has abandoned the idea and methods of world revolution. They will preserve their freedom only if, in this period of relaxation also, they keep their spiritual and moral armor shining, meeting the sophisticated Communist approach with vigilance and firmness.

Switzerland's Attitude

It is entirely obvious that no country on this planet can stay aloof from the effect of the present world differences. The polarization of world policy in Washington and Moscow is so pronounced, the respective attraction issuing from these two great magnetic fields so powerful, that there hardly remains any room for a "third force." Nations like Yugoslavia and India, which oscillate between the two poles, do not constitute any independent centers of power and never will. Equally, the attempt to turn Western Europe into such a "third force" would be condemned to failure. This attempt, arising from a wish to eliminate the dependence of Europe on the United States, would, in reality, bring about a complete dependence of Europe on the Soviet Union.

Switzerland—despite her state neutrality, which is the very opposite of neutrality—does not stand aloof from the great controversy. Spiritually and culturally, by her historical tradition, by her political institutions, and by her whole way of life she belongs to that world of the West which is threatened by Soviet Russian Communist expansion.

As stated by the leader of Swiss foreign policy some time ago, "Switzerland is threatened in its existence to the extent to which Europe itself is threatened." Many generous measures have been taken since for the economic reconstruction, political unification, and military defense of Europe, and Switzerland has participated

in these measures whenever such participation was compatible with her neutrality status.

But neither the economic reconstruction, nor the process of political unification, nor the military defenses of Europe are as yet completed. The political unification, in particular, has suffered a heavy setback as a result of failure of the European Defense Committee. All the more pertinent is the question how the "policy of relaxation" will affect those efforts of the free peoples which were begun in reaction to the open threat from the East.

Together with all peace-loving nations Switzerland sincerely desires a real and lasting relaxation of international relations and a solution of the great pending problems in a spirit of justice. A "policy of relaxation" designed merely to consolidate the *status quo* (a partitioned Germany, a split Europe, a continuation of the oppression of the Eastern European nations), to break up the Western alliance system and to drive the Anglo-American forces from the Continent would threaten the free world in general and Europe in particular with greater dangers than the cold war produced at its high points. Writing off the oppressed nations in Eastern Europe would mean a heavy blow to the moral position of the free world and, at the same time, tremendously strengthen the influence of Soviet Russia in the satellite states. For obvious reasons the present distribution of strategic strength would thus be greatly changed to the West's disadvantage.

Should the Russians succeed with their policy of relaxation in destroying the unity of the West, in weakening its defensive alliances, and, finally, in inducing the Anglo-American shield bearers of NATO to turn their backs on the Continent, they would hardly need to mobilize a single division of the Red Army to complete the subjection of a softened-up and disintegrating Europe.

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Offensive Air Support

Digested by the MILITARY REVIEW from a copyrighted article* by Captain H. M. Tiltotson in "The British Army Review" September 1955.

THE Allied reverses in the early years of World War II demonstrated the support which air forces must give to armies to allow them to take the offensive. It became the invariable practice for all operations to be planned jointly from the earliest stage, and this produced the success of the later years. Airpower came to be regarded by the soldier as a weapon essential to success in battle.

In spite of this development the results of the two campaigns in which the nations of the West took part subsequent to that war, although they possessed air superiority, were not so favorable as this advantage led many to expect. An examination of the conditions under which these two campaigns were fought gives rise to the following question:

Do the results of the Korean and Indo-China campaigns, where the United Nations and French Union forces each enjoyed air superiority, show that a new concept of offensive air support to land forces is necessary in order to exploit airpower when fighting an enemy who may protect his industry, supply base, and airfields behind an impassable political frontier; or when fighting an Asian enemy who has vast numerical strength and yet can exist and fight with a much reduced and, therefore, less vulnerable logistical support?

The world situation is not such that we can afford to disregard the possibility of waging further campaigns under one or both of these conditions.

Offensive Air Support

The gaining of air superiority over the area of the intended offensive is the first

necessity. This is done by the destruction of enemy fighter aircraft in aerial combat and the subsequent clearing of the air for the launching of the attack by ground-attack fighters and medium bombers on enemy forward airfields. This action will create local air superiority for a given time only. To ensure the continued suppression of the enemy air forces and yet release a large proportion of our own tactical air force for the next phase, it is necessary for the strategic air force to attack enemy aircraft assembly installations so that he cannot rebuild his depleted air strength.

The air superiority thus gained allows freedom of movement for our land forces and, at the same time, makes way for our own close support air action. The program of interdiction aims at the isolation of the enemy formation scheduled to receive attack. Lines of communication leading into his area are cut in the early stages to prevent his own buildup in anticipation of our assault. Then those within that area are attacked to paralyze his power of movement and redeployment to meet our attack when it is launched.

The Problems

Whereas it is possible to win superiority in the air by aerial combat over the battlefield, if the enemy fighter bases and assembly plants enjoy political protection, that superiority can be guaranteed only to the land force commander so long as our own aircraft are over his area. Complete air superiority can never be ensured as the enemy can reform and refit in safety behind the frontier. Even reconnaissance of his state of air readiness is denied to us and the threat of sudden air attack from behind the frontier is ever present.

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The interdiction program is hampered as it is limited to targets on the near side of the frontier. As the enemy production and base supply depots may function safe from air attack, it is all the more important that the lines of communication to his advanced formations should be severed. The existence of the frontier may make the vulnerable portion of these lines short. In the case of a frontier like that of the 500-mile, jungle-clad, mountainous border between North Vietnam and China, the lines of communication are so difficult to locate and may be so widely dispersed that effective air attack upon them is most difficult to perform.

The Asian soldier can, however, live in very reduced circumstances and upon little extra food other than his basic rice. There is no doubt that the Chinese and Vietminh soldier was prepared for forced marches and was thereby not restricted to the use of vulnerable soft-skinned troop-carrying vehicles. Equipped only with his weapon and ammunition and supplied with a daily small quota of rice he can live and fight tenaciously for months. His standard of living in early life is low and uncomplicated and he is taught as a soldier to regard even that standard as one of luxury. Being very largely cleared of troop movements, with only a relatively small proportion of transport allocated for food supply, the roads are free for the movement of those two commodities vital to modern war—ammunition and gasoline.

The supply of labor available to the Asian army commander is so large that he can go even further in his efforts to maintain his lines of communication. The rock built roads of the Tonkin delta had huge piles of stone placed every few yards for immediate repair. Gangs of coolies literally lived on the road and built protection on the spot in the form of two-man defense slits cut into the banks on the roadside. French Union reconnaissance aircraft attempting to calculate the effect of

the previous day's bombing attack upon roads often only located the bombed area by the new stone surface of the road.

The early interdiction programs in Korea were directed against the enemy's road transport. The weight of these attacks was great and the daylight transport stopped, but it moved again at night. Night attack on moving road and rail transport is difficult to deliver with accuracy and so is severely limited in its effectiveness, a vast weight of bombs being required to produce even slight results. The attacks, therefore, switched from the transport to the roads themselves. The Chinese countered by the same methods of road repair as used by the Vietminh; roads shattered by daylight attack could be patched in time for the ammunition and gasoline to roll forward under cover of darkness.

Air Superiority

The limited airborne endurance of the modern jet fighter precludes the use of the wartime cab-rank system of air support. It is vital, however, that the army has protection from enemy air attack. The fighter wings allocated for the prevention of enemy air interference must have a high proportion of their strength on runway readiness. Fortunately, the high-speed capabilities of the jet fighter allows it to arrive in the required area in a very short time. However, the enemy may well arm himself with jet aircraft of a performance equal to our own. The limited range of the radar equipment, particularly when coping with low-flying aircraft, will not give the fighter wings the required amount of notice for them to guarantee the ground troops freedom from air attack.

A system of airborne early warning similar to that used by a naval carrier assault force is necessary. A series of aircraft specially equipped with radar apparatus would form a constant patrol as close to the frontier as possible. These patrols would be able to provide warning of the movement of enemy aircraft even before

they crossed the frontier and so flash the news to the waiting fighter wings which could be alerted in time to meet the enemy.

These patrol aircraft, which would be expensive to maintain both in crew and equipment, would be most vulnerable to attack. They should, therefore, be designed to afford themselves maximum self-protection by speed, maneuverability, and armament. To ensure the maximum safety to the ground commander, these two precautions of runway readiness and airborne early warning need to be supplemented by a constant pattern of fighter sweeps. These will provide added protection to the radar aircraft, form a final degree of insurance against low-flying enemy which may escape the radar screens and, should they be in the area at the appropriate moment, be on call to the radar aircraft for immediate interception of detected enemy air attackers.

Interdiction

Assuming that domination of the air over the area of intended attack has been achieved by the methods just described, then a study must be made of the method of application of interdiction in order to overcome the enemy advantages posed in the question.

The political frontier will probably fall into one of the following three geographical categories: an ill-defined border winding its hidden way over a vast expanse of mountainous and possibly jungle-clad terrain; a sharply defined natural barrier, probably a river; or lastly, a simple man-made barrier in open country. The northern frontier of Indochina is an example of the first category and that of Korea with Manchuria a combination of the latter two. Methods of medium range interdiction will vary with the type of frontier.

The mountainous, jungle covered type is a severe problem. The lines of communication are easily hidden and may be widely dispersed. However, the mountainous nature of the country will create a series of

vulnerable points along the lines of communication. A program of intensive reconnaissance using all available means should lead to the detection of the main routes. Once these vital points have been pinpointed, then a round-the-clock interdiction program must be arranged to keep the lines of communication broken. Meanwhile, reconnaissance will continue to locate the new routes which the enemy certainly will seek to create.

A natural barrier like the Yalu River is ideal for attack upon lines of communication which cross it. It will provide easily identifiable foci of roads and railways at the various bridges. Even if the bridges themselves are politically safe, the convergence of communications on the near bank will be excellent concentrated targets. The weight of attack within the program of medium interdiction should be directed against these points, not just by day but round-the-clock, since the resourceful enemy doubtless will use his vast manpower by night to repair the damage caused by daylight attack.

A straightforward manmade frontier in open country sets a more difficult problem as nature does not direct the lines of communication into concentrated, and thereby vulnerable, channels. The only solution is to attack and keep broken the roads and railways as close to the frontier as possible and set out a heavy schedule of short-range interdiction against the actual means of transport, that is vehicles and rolling stock, in the forward areas. The integration of heavy and medium artillery into this program would assist and spare aircraft for other tasks. This situation will require constant and vigorous effort by all methods; coordination of attack at the highest level would be necessary in order to prevent enemy exploitation of means of entry away from the immediate battle area with subsequent access to that area by lateral roads.

The first requirement is a realization

that a decisive effect can be wrought only by attack upon items vital even to an Asian army—ammunition and gasoline. Dumps of these commodities must be located by vigilant reconnaissance wings of the tactical air force and attacked unceasingly. However, the enemy still has an advantage over us because his lighter scales of food and comforts enable him to transport more ammunition and gasoline. Again the area to be searched and attacked is increased.

We need to go further and find some way in which the Asian enemy is vulnerable where we are not. The difference between the two types of army leaps to mind at once—numerical strength. This must be turned into a weakness so far as aerial attack is concerned.

If the enemy is so unwise as to concentrate his troops, then those concentrations will constitute ideal targets in themselves and attacks of air burst and napalm bombs will produce heavy casualties. They will also soon teach the enemy to disperse.

Psychological Attack

Whereas large numbers of troops together breed confidence, dispersion in relatively small numbers in often desolate

areas leads to a feeling of neglect and insecurity. This latter sensation will be increased if our disruption of enemy communication cuts off large numbers of these troops from news of the progress of the campaign. We can turn the enemy advantage of vast numerical strength into a vulnerable chink in his defense by attacking his nerves.

Airpower is of great assistance in psychological warfare. Daylight attacks on road movement will confine the enemy to exhausting and confusing night moves, and a proportion of the tactical air force diverted to armed reconnaissance work will ensure the enemy has no peace from attack by day. Further experiments should be made to develop morale-destroying air weapons, particularly on the napalm and German screaming bomb type.

These suggestions might be summarized by saying that air reconnaissance should be even more searching and comprehensive, fighter defense must have earlier warning and more accurate vectoring, and bombing must be a closely coordinated ground-air effort on a 24-hour schedule against vital points and actual transport, not simple road breaking.

Field Information for the Fighting Forces

Translated and digested by the MILITARY REVIEW from a copyrighted article by Major Sven Hedengren in "Ny Militär Tidsskrift" (Sweden) Nr. 7-8, 1956.

EVERY major war, shortly after its outbreak, has revealed so many innovations from the technical, tactical, and organizational points of view that many of the traditional combat methods suddenly have shown themselves to be outmoded. One need only recall the effects of the first German gas attack in World War I, the German air-landing and tank tactics, the Allied amphibian operations, the Russian massed artillery tactics, and the American atom bomb attacks in World War II to realize that we must count on entirely new

combat methods and means in a new major conflict. When that time arrives we cannot afford to stand inert and bewildered, but must act and act quickly. Otherwise, the effects on the troops' combat ability and morale can be calamitous.

Measures must be taken in time of peace that will make it possible from the very outbreak of the war to reduce this risk to the greatest possible degree. Military information must be systematically procured, rapidly evaluated, and distributed to the troops in training centers and to

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units in the field to assure effective combat action.

The vital necessity for an organization to accomplish such a purpose is evidenced by the efforts made in the American and in the Finnish Armies to effect an interchange of information obtained in the field army relative to the enemy's combat methods and means and the countermeasures of the friendly forces against them.

Combat News

During the earlier phases of World War II numerous observers gathered quantities of valuable informational material which was distributed widely in the American Army. It became evident, however, that the units often received part of this material too late to profit by it before going into action. The observations in question were sometimes neither continuous nor sufficiently accurate and there was often duplication of effort. This, in turn, resulted in waste of time and unnecessary trouble for unit commanders and staffs.

These defects were overcome, however, by a special training group in the army group headquarters section concerned (G3). In a directive from the commander in chief (Eisenhower), this group was authorized to detach an observer to each front army corps. These observers were to report their information directly to the staffs which had detached them, at the same time providing a copy of all reports to the headquarters of the unit which their observations concerned.

Information which was considered to be of direct value to the combat formations was assembled in a mimeographed publication designated as "Battle Experiences," and issued to all ground units down to companies. The information which was deemed to be of special value to higher commanders and authorities was published in the form of a communication designated "Immediate Reports," and was delivered to the army leaders and higher staffs. The

publication in question was stamped *Secret*, as a rule, and contained criticisms of the units' regulation equipment together with suggestions for changes relative to equipment and organization.

During the first month after the establishment of the organization 17 "Battle Experiences" and 15 "Immediate Reports" were issued and over a 10-month period, 120 issues were made of the former and 219 of the latter.

Usually, the information given was presented in a very concise form together with the name or title of the persons interviewed. Great weight was attached to the quick dispatch of these bulletins.

"Battle Experiences" was a newspaper type document which gave the frontline soldier the news he had especial need of—news concerning the best way to kill his adversary without himself being killed. As an example: When it became evident (in September 1944) that the Allies would soon move forward to the German Siegfried Line, observers were sent forward to "interview" the units. The result was that five days after the troops of the V and VI Corps made contact with the German fortified line, every company and battery in every Allied division in France had an actual description of the Siegfried Line's fortified installations together with every conceivable method for their combat.

In order that each reader should find at least something of interest to himself, every number of the "Battle Experiences" dealt with several different types of subjects under special headings, for example: Aggressive Combat; The Cooperation of Artillery and Infantry; Marching Fire; The Employment of Smoke Against Tanks; Night Attacks; and Patrol and Reconnaissance.

In November 1944 the administration of the organization was changed over from the army group headquarters to the headquarters of the commander in chief for the European theater where, in the opera-

tions and training section, it was given the name of Combat Lessons Branch.

The troops not only expressed their appreciation of the information given them in the "Battle Experiences" publication, but actually were enthusiastic with regard to it. One division commander declared that "Battle Experiences" was "the most valuable publication received by his staff from any source."

A number of divisions wanted more copies so that their distribution could extend down to the platoons. Other divisions managed to issue copies of certain "lessons" so that they could reach every squad. Paper shortage made it necessary to limit distribution to the company (or equivalent), however. In spite of this the circulation rose to around 22,500 copies.

In the staff of the commander in chief of the European theater, eight officers and 12 men were occupied with studying the observers' reports, in selecting what should be published, and in setting it down in as clear and concise a form as possible.

The effort was made to obtain information concerning new combat methods, the effectiveness of new weapons, and effective combat procedures of various kinds. As a result, the initiative and resourcefulness of the fighting units were also stimulated.

The publication, "Immediate Reports," for higher commanders and authorities was more technical and specialized. Its main purpose was to convey the views of the fighting fronts on such questions as the appropriateness of the prescribed equipment and the need for new weapons and other new matériel. It constituted a means for passing along exact information, particularly concerning new weapons or special combat technique.

The Finnish Counterpart

As a battalion commander on the front during the last Russo-Finnish War, the author had an interest in the classified publication, "Tactical and Other Informa-

tion Concerning the Enemy," issued by the Finnish Headquarters Training Section. This section consisted of a chief, one general staff officer, and two or three Russian-speaking reserve officers.

The combat information collected, evaluated, and printed in a highly concentrated form and distributed to staffs and battalions—inclusive of information obtained by prisoner interrogations—was gathered in two different ways.

The commanders of all frontline units reported in writing any information they might acquire concerning combat methods, combat means, and military ruses employed by the Russians but heretofore unknown to the Finnish troops. The reports in question were accompanied, as a rule, by an explanatory sketch and a statement of the countermeasures taken and the results obtained. These reports were sent in by service means to the headquarters and under no circumstances were permitted to be delayed en route. This ensured early exploitation of the information.

The chief of the training section's study group also made trips to the various fronts for study purposes and recorded his own observations and the experiences of the officers and men in the frontline.

In both cases the effort was made to dispatch valuable and generally applicable tactical and technical information as quickly as possible to the front formations and headquarters. The more careful evaluation was engaged in only after its rapid distribution. The complementary summarization then was given the same distribution as the preliminary information.

In order to prevent these reports from falling into the enemy's hands, they were not permitted to circulate among the lowest units in the frontlines. Instead, they were discussed at the battalion headquarters with the commanders and, if circumstances called for it, with those members of the troop body especially concerned.

As an example of the effectiveness of

this method, the day after a battalion commander had oriented his company commanders concerning the new Russian weapon (*Katyusha*—Stalin's organ), one of the companies was subjected to a sudden fire concentration of rocket projectiles. Thanks to the previously gained knowledge of this new combat means, however, even its moral effects on the troops did not materialize—a striking proof of the importance indicated in both the American and Finnish Armies of the quick distribution of such information to frontline forces.

A German General's View

On the German side the importance of this matter also won attention. Thus former Lieutenant General O. von Natzmer in an article in "Wehrkunde" (September 1955) dealt with the problem discussed here. He also emphasizes strongly the need for "an entirely special organization. If one wishes to follow rapidly and closely on the heels of the god of war, the exploitation of the information obtained during a war is imperative."

It is his view that the responsibility for so doing should be placed in a *central organization in the supreme military administrative body* "to profit by this information and to pass it on to the troops in the form of new directives or regulations for their action in combat."

The German general emphasizes the importance of oral statements by experienced combat commanders. A source of information such as this can be of inestimable worth to the troops in the field and at the training centers.

As an additional source of information relative to combat experiences he mentions the dispatch of officers of sound judgment to important front sectors and focal points in the fighting. These observers from the central organization should have the mission—by their own observations and through conversations with the commanders of frontline units—of collecting valu-

able material that will be of assistance in working out new methods of combat.

With the help of information from the front obtained in this way, and by the study of the battle reports of units and staffs and of intelligence logs, it should be possible without too much expenditure of time to provide the troops with accounts of important experiences and of new tactical regulations.

The Korean Conflict

The Korean conflict confirmed the value of the system of collecting combat information and passing it on to the troops as employed in the American field army during World War II. The problem here was to inform the big training centers in the United States as well as those in Japan and Korea concerning the new methods and means of combat which characterized this war. For example: infiltration, ground supply in the dark, and massed night attacks on the part of the adversary.

To this end the chief of Army Field Forces issued concise advice and instructions based on the latest information (so-called "combat tips") for the training operations in the homelands in the assembly and training centers in the theater of war. These were combined in printed reports, the "Combat Training Bulletins."

Obviously, along with the hurried study, a collection had to be made of source material as a basis for the future writing of the history of the war. This work was conducted, as a rule, by a military history section at headquarters from which liaison officers were sent out to the troops. The Americans early recognized that personnel were required for this task who possessed a thoroughgoing knowledge of history. A large number of younger historians were enlisted, therefore, and given posts as "historical officers" best suited for controlling the work of these liaison officers.

Well-regulated cooperation, from the very beginning of the war between the

short-range activity and the historians, who operate more in the interest of the future, is necessary to avoid duplication of effort. Thus the source material which is collected by the first activity can be placed at the disposal of the military historians after it has been distributed to the frontline troops for their benefit and guidance.

The combat descriptions which are assembled by the frontline liaison officers are subject, it is true, to certain restrictions for security reasons. However, since these frontline journalists are in close contact with command and troops in the field and are themselves witnesses of the fighting, it ought to be possible to make use of their experiences for purely military purposes. Their experiences could be collected by a headquarters representative at the front sector in question, or on the occasion of journalist return to the higher headquarters.

Anyone who reads the war books of the Finnish war correspondent, Gunnar Johansson, certainly perceives how valuable a sharp-eyed frontline observer is in the gathering of combat information of various types—and not least of all in the psychological field.

The importance of collecting the experiences of the frontline troops in war while the battles and their lessons are still fresh in the minds of staff and troop officers was taken into account by the Finnish Headquarters at the end of the "War of Continuation."

Shortly after the end of the war the order was issued that in the various divisions an officer with frontline experience and especially qualified for the task should deliver to the division's officers a lecture based on his experiences in a certain important tactical branch—for example: "combat in woods and the organization of the liaison service under these conditions," and "offensive combat." At the conclusion of the lecture a discussion of the views

expressed on the subject was held during which minutes were kept of the discussion. In this way a foundation was received for the elaboration of new regulations and for postwar training in the army.

Technical Information

An important detail in regard to the coordination in war of the collection and exploitation of information of various types is the collection, study, and utilization of war equipment captured from the enemy, especially combat equipment—purely technical information service.

Thus in the American Army in World War II a number of ordnance officers and men were selected at the beginning of the war and put through a special course in the design and employment of the enemy's weapons. These specially trained personnel later were sent to the different theaters of war. They were equipped for combat there and given the mission of taking charge of the weapons and other ordnance matériel captured from the enemy and of assuring that it was sent directly home to America.

These ordnance representatives were permitted to accompany the advanced troop formations and assisted in the interrogation of prisoners. Special training programs were arranged and the fighting forces were trained in handling the enemy's weapons and equipment. Information of value relative to the enemy's equipment was collected and delivered to the intelligence section which passed it on to the formations in particular need of it.

Later on these detachments were expanded to include specialists in quartermaster, signal, chemical, smoke, medical, and engineer matériel.

A special group for the collection of information relative to the enemy's war matériel was created in the army group ordnance for the purpose of carrying on the same work as the lower echelon ordnance information groups. Some of the higher

headquarters were also assigned such groups.

Summarization

For easily understood reasons the activity of the intelligence service in the field is difficult to duplicate during military exercises in time of peace. Its importance in time of war, and especially at the beginning, has become greater and likely will be still greater during a new major conflict. In such a war, innovations resulting from the use of atomic and robot weapons in the various domains of warfare surely will bring very unpleasant surprises.

An efficacious organization is required to orient the combat forces effectively with

regard to new combat methods and means. It must be functioning at the outbreak of the war and reaching out from a central organization at headquarters to the fighting troops.

The organization in question must ensure an increasing interplay between the gathering of information and its rapid evaluation and dispatch to one's forces on the front and to the higher military authorities most concerned.

The groups comprised in the organization must cooperate closely with the military history groups, with the front correspondents under the control of the headquarters, and with the groups studying troop training and captured war matériel.

The United States Army today is one of the major elements of our Nation's defensive strength, as well as one of the sturdiest pillars of our dedicated diplomacy for peace. Its ability to discharge its manifold defense responsibilities—to deter aggression, or fight successfully no matter what kind of a war might be thrust upon us—is one of the most important measures of our national security. It is ready for whatever emergency might develop—whether it be a limited or a global war or any other form of aggression. The Army is fully abreast of the rapid evolution of modern warfare. It is well along in the transition from powder to atomics, from trucks to helicopters, and from cannon to missiles.

The Army's weapons—both atomic and conventional—are the best that American science and industry have been able to provide. It has in its arsenal powerful atomic weapons precisely tailored to its needs which could be used with discrimination against all targets—distant as well as close-in. It can deliver its atomic punch with complete accuracy day or night, despite rain, snow, fog, or any other weather condition.

Secretary of the Army Wilber M. Brucker

BOOKS OF INTEREST TO THE MILITARY READER

CONSPIRACY AMONG GENERALS. By Wilhelm von Schramm. 215 Pages. Charles Scribner's Sons, New York. \$3.95.

By CAPT ROY W. FARLEY, *Armor*

The full details of the attempted assassination of Adolf Hitler on 20 July 1944 have only recently become available in English print. This book, translated from the German and written by a German war reporter who was attached to the German High Command in France, relates the story of the conspirators of the Paris Group.

The plot against Hitler, which had its roots in the years before the war, culminated when the briefcase of Colonel Klaus von Stauffenberg exploded in the war-room of Hitler in Rastenburg, East Prussia. Although a freak saved Hitler's life, the explosion was the signal for a series of events which only ended after the conspirators had gained and lost control of the Army Headquarters in Berlin.

For the historian, Von Schramm's book is lessened in value by the fact that many of his accounts of meetings and conversation are obviously conjecture, and his record is not sufficiently documented to permit the reader to form a clear opinion of its authenticity.

Of particular interest to the military reader, however, is its contribution to the character study of professional military men forced to make a choice between two concepts of duty—loyalty to their leader or loyalty to their country.

THE FRENCH FAUST: HENRI DE SAINT-SIMON. By Mathurin Dondo. 253 Pages. The Philosophical Library, Inc., New York. \$3.75.

By MAJ HORST K. JOOST, *Inf*

The German Faust and his French counterpart, Henri de Saint-Simon, were both led on by the dominant passion, the desire to convince the world of their superiority. Belief that he was a direct descendant of Charlemagne drove Saint-Simon through life toward the accomplishment of his one ambition—the attainment of glory.

Saint-Simon began his military career at the age of 17 when his father purchased a commission for him. In 1779 he was among the Frenchmen who volunteered their services to help the American Colonies win their independence. He participated in the siege of Yorktown where he commanded 166 French artillerymen. Although Saint-Simon's total stay on the American Continent was only 46 days, he often boasted of being one of the founders of the United States of America.

This book is interesting for the character study of an unusual individual and secondarily for the student of political and social movements.

THE REPORT ON UNIDENTIFIED FLYING OBJECTS. By Edward J. Ruppelt. 315 Pages. Doubleday & Co., Inc., Garden City, New York. \$4.50.

KOREA 1951-1953. By John Miller, Jr., Major Owen J. Carrol, United States Army, and Margaret E. Tackley. 328 Pages. Office of the Chief of Military History. Superintendent of Documents, Government Printing Office, Washington, D. C. \$2.50.

By Lt Col SAMUEL G. KAIL, *Inf*

Korea 1951-1953 is a brief outline and pictorial history of the Korean war. The textual portions of the book are based on records and reports of the Far East Command, United Nations Command, and the Eighth Army. The operations of the United States Army are highlighted, but the achievements of the sister services and of the other United Nations troops are summarized.

Like its predecessor, *Korea 1950*, the book contains maps and a short written text, primarily factual, which discusses and portrays the over-all military situation throughout Korea, followed by written material with many photographs from all sections of the front.

For the individual who desires a concise and *Life* magazine type presentation of the Korean conflict, this book is ideal. The many photographs will bring back vivid memories to the reader who was there. To the reader who was not there, the photographs help visualize conditions that existed, and explain in part why this conflict was probably the most unpopular of all time.

PATRICK J. HURLEY. By Don Lohbeck. 513 Pages. Henry Regnery Co., Chicago, Ill. \$6.50.

By Lt Col DANIEL A. RAYMOND, *CE*

This biography of Patrick J. Hurley is the story of a great American who in real life has surpassed even the fictional successes of Horatio Alger's heroes.

As interesting as is the biography, the story of events in which he played a not insignificant role is even more intriguing.

He was Secretary of War when the "Bonus March" occurred, backing his Chief of Staff Douglas MacArthur in dispelling the radical elements. During World War II, when he could have rested comfortably on his laurels, General Hurley chose to enter a period of vigorous service to his country that carried him over the world as a participant in fateful events in the role of Presidential troubleshooter and advisor.

The final episode of this service found him in China as ambassador with what proved to be the impossible task of bringing together the Communists and Nationalists. His successful endeavors to solve this problem are portrayed in a tale of frustrations, apathy, machinations, and military expediency considered above long-range political considerations. It is a damning story of sabotage of American policy and the betrayal of China. The agreement at Yalta and the intrigue of disloyal civil servants are explored, assessed, and condemned. In a final protest General Hurley resigns to fight against a situation that his belief in his Nation, his integrity, and his high sense of duty could not condone.

This book is worth reading solely for the story of the man as he rises from his environment to traverse and leave his imprint on the American scene of the last 70 eventful years.

THE ITALIAN CAMPAIGN 1943-45. By Lieutenant Colonel D. K. Palit. 91 Pages. The English Book Depot, Ferozepore Cantt, India. \$1.05.

ASSAULT BATTLE DRILL. By Major General J. C. Fry. 114 Pages. The Military Service Publishing Co., Harrisburg, Pa. \$2.00.

MACARTHUR. His Rendezvous With History. By Major General Courtney Whitney. 547 Pages. Alfred A. Knopf, Inc., New York. \$6.75.

LINCOLN FINDS A GENERAL: Iuka to Vicksburg. Volume IV. By Kenneth P. Williams. 616 Pages. The Macmillan Co., New York. \$7.50.

By LT COL IRVING HEYMONT, *Inf*

This is the fourth volume in Professor Williams' seven-volume definitive history of the Civil War. The author describes the battles and analyzes the decisions of the commanders on both sides, and displays a tremendous insight into the complexities of war and the interplay between logistics and tactics and between politics and military events.

The campaign for the near impregnable Vicksburg is described in vivid detail. From the account a true picture of General Grant emerges. His modesty, unselfishness, and even judgment are so uniform as to be unspectacular. The Vicksburg Campaign, which involved five major battles against two Confederate Armies, clearly ranks among the most flawless of American campaigns.

The employment of the *Official Records* as the major source enables the author to lay to rest the ancient myths that General Grant indulged in bouts of drunkenness or that he cut communications to Washington in order to prevent interference. Professor Williams concludes that the account of Sylvanus Cadwallader which gave rise to these myths was only a sensational story of a newspaperman who had no personal knowledge of what he wrote.

Written in a clear lucid style and well illustrated with explanatory sketches, this volume is highly recommended for the serious student of the Civil War. The casual reader may find it too detailed for leisurely perusal.

ACROSS THE HIGH FRONTIER. The Story of a Test Pilot—Major Charles E. Yeager, United States Air Force. By William R. Lundgren. 288 Pages. William Morrow & Co., Inc., New York. \$3.75.

SOLOVYEV. Prophet of Russian-Western Unity. By Egbert Munzer. 154 Pages. The Philosophical Library, Inc., New York. \$4.75.

By LT COL HOWARD L. FELCHLIN, *Inf*

The eventual *rapprochement* between the Russian and Western way of life is the cherished goal which represents the indispensable prerequisite for enduring peace. How to achieve this objective is the primary preoccupation of the world today. Solovyev, a Russian philosopher of great distinction, propounded the viewpoint that only moral force in terms of Christian ideals and principles provides the basis for Russian-Western unity.

The late Professor Munzer is a firm supporter of Solovyev's philosophy and documents his convictions by discussing the life, teachings, and beliefs of Solovyev who like Dostoevski espoused the thesis: "To be a good Russian means to be more than Russian, it means to be the citizen of the world, the reconciliator of all ideas." The corruption or negation of this belief has contributed to the creation of the existing chasm between Russia and the West. In the latter half of the 19th century Solovyev formulated and expounded his mystical philosophy which in essence concludes that "the East needs the West and its faith in man; the West needs the East and its faith in God."

Today, in official Russia, Solovyev's philosophy is dead—killed either by implication or explicit action, but in reality his influence represents a dormant force awaiting the call of history. In Solovyev's judgment, only moral force, a reawakening of spiritual values, and a universal acceptance of Christian principles will generate the seeds of total unity which can permanently bridge the gap between Russia and the West.

THE NONCOM'S GUIDE. 522 Pages. The Military Service Publishing Co., Harrisburg, Pa. \$3.00.

THE CANADIANS IN ITALY 1943-1945. Volume II. By Lieutenant Colonel G. W. L. Nicholson, Deputy Director, Historical Section, General Staff. 807 Pages. Edmond Cloutier, Queen's Printer and Controller of Stationery, 1956, Ottawa, Canada. \$3.50.

By LT COL ROBERT M. WALKER, *Arty*

This is the second volume of the official history of the Canadian Army in World War II. It describes in meticulous detail the Canadian Army's part in the Italian Campaign. The story of the campaign is rounded out with a graphic account of the final Allied offensive which ended with the capitulation of the German forces in Italy.

Although an official history, it is not a formal presentation of dates and places, but is rather a narrative discussion of a major effort.

Of especial interest to the military student and historian is the carefully documented and objectively presented discussion of the conferences and decisions which led to the invasion of Sicily.

Outstanding in the volume are the numerous carefully constructed charts and maps.

THE SOVIET UNION AFTER STALIN. By Helene and Pierre Lazareff. 254 Pages. The Philosophical Library, Inc., New York. \$6.00.

By MAJ HARRY H. JACKSON, *Inf*

The Lazareffs are French journalists who accompanied a French theatrical company (Comédie-Française) on a tour of Russia. Their book is an effort to describe aspects of "the life of Russian people as it is lived."

The authors make no effort to delve deeply into the large-scale political, social, and economic trends in the Soviet Union. They effectively describe aspects of modern Russian life often missed in analyses of Russia and the Russians.

These vignettes are of value in that they give some insight into the living conditions of the Russian man on the street and the élite, plus the atmosphere in which the Russian literati operate.

The authors' combination travelogue and Parisian journalists' view of the Malenkov era is interesting reading. However, to a serious student of Russian affairs this work will seem rather superficial.

THE SOVIET SECRET SERVICES. By Otto Heilbrunn. 216 Pages. Frederick A. Praeger, Inc., New York. \$4.50.

By LT COL HOWARD L. FELCHLIN, *Inf*

Did Soviet espionage, infiltration, sabotage, and partisan warfare significantly contribute to the success of the Soviet Army during World War II? Dr. Heilbrunn's answer is an emphatic yes and he substantiates his convictions here by a detailed documentation of the Soviet's skillful utilization of these "weapons of war" that are not limited to the confines of the battlefield.

The spectacular achievements of Soviet espionage and infiltration tactics are well illustrated by the activities of *Rote Kapelle*, the vast Soviet spy network in Europe, and its Swiss branch, *Rote Drei*.

Dr. Heilbrunn's conclusions are simple and direct. The recorded lessons of recent history offer us a grim warning for the future. Irrefutable evidence indicates that the Soviets are past masters in the art of espionage, subversion, infiltration, and sabotage; they have used these "weapons of war" to good advantage in the past and can be relied upon to intensify their efforts in these fields in the future. Hence it remains for us to assess carefully the formidable challenge which the Soviet clandestine war potential represents and prepare plans "to wage a war without a battlefield."

COMMAND VOICE. By Captain Richard W. Sharretts, United States Army Reserve. 106 Pages. The Military Service Publishing Co., Harrisburg, Pa. \$1.00.

BY 2D LT WILLIAM R. MOSS, *MPC*

In this book Captain Sharretts discusses every phase of voice production from posture and breathing to the technique of giving commands. His discussions are well illustrated by physiological diagrams showing the organs of the body and their function in voice production.

If used in conjunction with practical work which is carefully supervised, this book could be of value to instructors in the military service.

MARINE CARGO OPERATIONS. By Captain Charles L. Sauerbrier, United States Naval Reserve. 548 Pages. John Wiley & Sons, Inc., New York. \$10.50.

BY LT COL RICHARD C. BIGGS, *TC*

The military services realize significant savings by adopting tested civilian practices in the logistical field. Captain Sauerbrier has provided, in this excellent reference work, a means for military personnel to study and profit by the latest information on both civilian and military marine cargo handling operations. He also has accomplished the difficult task of presenting the subject so that it is intelligible to a layman and still meets the requirements of a specialist.

As one of the Materials Handling and Packaging series which encompasses the entire scope of cargo handling operations, this volume emphasizes, but is not limited to cargo handling in water terminals and on ships.

The chapter on Research and Development in the Industry should help to improve cargo handling in a field where there have been few real developments in the past 50 years. Any military man who is concerned with any phase of cargo handling will benefit by study of this book.

TWENTY MILLION TONS UNDER THE SEA. By Rear Admiral Daniel V. Gallery, United States Navy. 344 Pages. Henry Regnery Co., Chicago, Ill. \$5.00.

BY LT COL HAROLD E. BEATY, *CE*

Just outside Chicago's Museum of Science and Industry rests an interesting monument to the 55,000 United States men who gave their lives at sea during World War II—the German submarine *U-505*. This underwater craft was captured on 4 June 1944 by US Navy Task Group 22.3 commanded by Rear Admiral Gallery, then Captain, after a battle off the west coast of Africa.

During World War II unlimited warfare waged on the seas between the Allied nations and the Axis Powers which resulted in the loss of over 20 million tons of shipping to the Allies. In the early stages of this war the German U-boats were at liberty to roam the Atlantic Ocean almost uncontrolled.

In time, Germany began to feel the toll of losses on the continent through loss of manpower and industrial potential. This had direct effect upon her ability to continue submarine warfare. By early 1944 the Allies had domination of the seas once again and methodically sought and destroyed the German undersea crafts. In this struggle for sea supremacy, the *U-505* was captured.

The author has set forth in this book a vivid, interesting, and accurate account of the life, adventures, and mishaps of those who lived and fought aboard the German naval raider *U-505*. Perhaps the most striking part of the book is the effect of leadership aboard the submarines which is of vital interest to all commanders.

WAFFE UND WIRKUNG BEI DER FLIEGERABWEHR. By Hans Brändli. 91 Pages. Birkhäuser Verlag, Basel, Switzerland. \$6.19.

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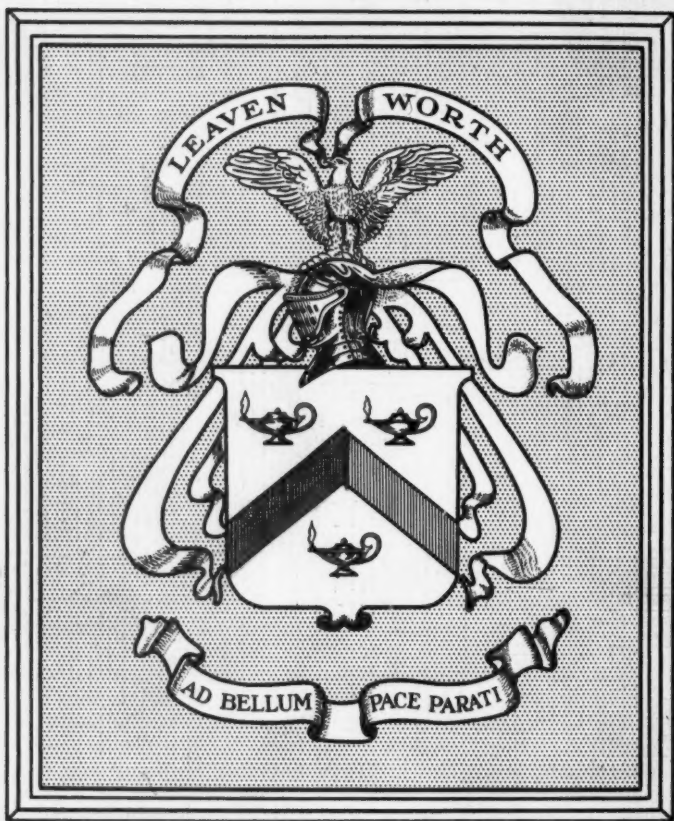
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